The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL XXIII. No. 577 JULY 19, 1930 Prepaid Annual Subscription: United Kingdom £1.1.0; Abroad, £1.5.0

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The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders, and Postal Orders should be made payable to Benn Brothers, Ltd.*

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Telegrams: "Allangas, Fleet, London." Telephone: City 0244

Changing for the Better

A PERCEPTIBLE change is coming over the Society of Chemical Industry. So far as one can judge, it is a change for the better. Though it is yet too hazy to define, everyone at the annual meeting at Birmingham this week seemed conscious of it. This year's meeting, in its general atmosphere and tone, was the most satisfactory of recent years. It was united, cheerful, bright and brotherly, if not exactly brief. What was most notable was the businesslike character of the proceedings.. Perhaps this was partly due to the promising character of the reports. The membership, for several years slightly on the down grade, is turning upward. The financial position is certainly for the moment free from anxiety. The business element in the Council is steadily being strengthened. The new vice-presidents and the new members of council are men capable of bringing something into the common stock. The whole spirit, in fact, appears to be broadening out. This was well represented in the presidential address this year. Dr. Levinstein did not waste time on the minutiæ of the Society's business, nor on technicalities only understandable by the laboratory specialist. His address was a message to a wide general public; just the kind of utterance to make the nation realise in a large sense what industrial chemistry means. Also, one could not help noticing a marked change of personnel. Of the chief figures of a few years ago scarcely one was seen at Birmingham. A new type is gradually coming to the front. The changes all seem to point to a stronger grasp by the Society of the purpose for which it exists.

Next year, with Lord Melchett in the chair, the Society meets in London, and an effort will, no doubt, be made to see that the occasion is worthy of the Society's jubilee year. In 1932 the Society goes to Nottingham. It is several years now since we suggested that instead of having a crowd of miscellaneous and unrelated papers, though individually valuable enough, the Society should give some direction to the subjects selected for discussion by the sections, and see that this valuable work is trained on some definite problems. A step in this direction is to be taken this year, and the policy might well be developed. A little of the old spirit of jealousy and secrecy still lingers. The Society wants public notice in the Press, and is even expending something now on publicity arrangements; at the same time there is a dreadful fear of that sacred tradition of "500 words only" being undermined. To most people the anxiety on this point is merely amusing. There are only two policies—either to keep the door shut and ignore the Press altogether; or to open the door and let the Press do its own work in its own way. We have no doubt as to which is the policy best calculated to serve the Society's own interests, and the evidences are that the minds of a few people within the Society are opening to a little illumination on the subject.

Dyestuff Users and the Act

SIR SUTCLIFFE SMITH'S annual addresses to the Colour Users' Association have come of late to be regarded as very important surveys and statements of policy. This year's address, delivered in Manchester this week, fully confirms that view. The vital point in the speech is the declaration, on behalf of the colour users, that "they are opposed to any further extension of the Act," and that they adhere to the terms in the Act itself that the measure should run "for ten years and no longer." If this view is to be put in operation without qualification, it will mean that in January next the dyestuffs industry of the country will again be thrown open to unrestricted world competition. If it is really in a position to face these conditions, its progress in the comparatively short period of ten years is almost miraculous. Sir Sutcliffe Smith himself, keenly desirous that the existence of the new industry should not be imperilled, still retains an open mind to some extent and suggests that, if inquiry shows a further limited period of protection to be necessary, the protection should be limited to those dyestuffs of which the British makers have definitely established the manufacture in this country. This would cover about 80 per cent. of the

British users' needs and it would still constitute a substantial guarantee to the makers. Sir Sutcliffe Smith's address brings the matter down to definite terms, and these supply a basis for discussion among all the interested parties.

The World Nitrogen Position

THE recent address of Mr. C. C. Concannon, Chief of the Chemical Division of the Department of Commerce in Washington, to the United States National Fertiliser Association on " world conditions as to chemical plant foods " has all the interest of an expert observer who has recently been visiting us in Europe and is now able to look at things from a more distant and detached point of view. His general conclusion that the progress of the nitrogen industry in the war and post-war period is the most significant development in the world's chemical industry during this century no one will be disposed to question. The desire of every leading nation to become self-sufficient in the matter of nitrogen supplies, and the establishment of plants in so many new countries, has inevitably led to some over-production. In addition to synthetic ammonia plants, there has been higher recovery of by-product ammonia at coal distillation plants and increased operating efficiency and expansion of cyanamide plants, while the production of nitrate of soda in Chile has outstripped consumption. The world production of inorganic nitrogen reached 2,250,000 short tons in 1928-29,a gain of over 20 per cent. in a single year. World consumption of inorganic nitrogen in 1928-29 was estimated at 2,050,000 tons, approximately 14 per cent. more than that of the previous year. The United States and Germany consumed together about 45 per cent. of the world supply. Mr. Concannon's conclusion is that while production may outstrip consumption temporarily there are vast potential markets for nitrogen that await development and the industry must be prepared for a much greater ultimate demand.

In the face of rapidly increasing production throughout the world it was but natural that there should arise a desire to control and limit production. At the I.G. and I.C.I. international conference of producers this spring in Paris, the general view was that over-production made it necessary that a method should be reached for arriving at an international production quota satisfactory to the large producing countries and corresponding approximately to current world demands. If this idea is ever realised—and Mr. Concannon remarks that there are those who are optimistic as well as those who are pessimistic about the possibility of bringing so many divergent interests into line—there will be set up probably the world's greatest international cartel. The futile attempts made some months ago to arrive at an understanding between the Anglo-German-Chilean interests and the Franco-Belgian nitrogen interests clearly showed the difficulties attending any attempt at establishing a friendly working arrangement in this field. Both France and Belgium are among those countries which, for reasons of national defence, since nitrogen is essential for the manufacture of high explosives in war time, were disinclined to consider any and every proposition tending towards limitation of their nitrogen production. One of the views expressed at Paris that the I.G. and Imperial Chemical Industries, working together, did not control a sufficiently large percentage of the world's nitrogen production to impose their views on the other producing countries. Furthermore, the position of the I.G., the world's greatest single producer of atmospheric nitrogen, is not the dominating one that it once was. The I.G. has been facing for some time the threat of keen competition on the part of the Ruhr industrialists, who are able and seem bound to produce increasing amounts of nitrogen at prices which are reported to be under the cost of production possible in the great plants of the I.G. developed years ago under war conditions. The agreement entered into between these two groups may not be perfect but it presents a powerful front to the rest of the world. In reminding us that calcium cyanamide is one of the oldest forms of fixed atmospheric nitrogen, Mr. Concannon mentions that a European calcium cyanamide syndicate was formed on May 3 last, under the terms of which sales in each country are confined to the domestic producing establishments. Reports credit the German producers with the desire to bring together the producers of cyanamide in order to study the situation. The cyanamide cartel is reported as having decided that intensive propaganda will be necessary to increase consumption, in order to speed up cyanamide plant operations, which are now working at about 50 per cent. capacity, and to this end the producers intend to participate in the expense of such a campaign. The groundwork appears to Mr. Concannon to have been laid fairly well for setting up an international nitrogen agreement which would bring together the producers of natural and synthetic nitrate into one of the most powerful world cartel agreements yet conceived.

If this is to be consummated one of the important factors must be the Chile nitrate interests. The Chilean plans apparently involve the closing down and scrapping of all existing plants except the present Anglo-Chilean (Guggenheim process) plant, the large Lautaro plant under construction, and perhaps other strategically located plants which will be built to operate the Guggenheim process on a large scale. Concentration of the industry in a few modern plants is expected to cut the average production costs and more favourable prices to lead to an upward trend in consumption of Chile nitrate. Other rationalisation undertakings are in view, such, for example, as the exportation of the Chilean product in bulk, thereby eliminating cost of bags and cutting the handling costs in transportation. Several experimental shipments have been made with satisfactory results, and the significance of this saving is immediately apparent when one realises that the producers of Chilean nitrate paid $6,300,000 in 1928 for the bags in which to ship their product.

Books Received

PRACTICAL DRY CLEANER, SCOURER AND GARMENT DYER. By W. T. Brannt and J. B. Gray. London: Crosby Lockwood and Son. Pp. 378. 12s.

HANDBUCH DER SCHWEFELSAUREFABRIKATION. 3 Vols. By Dr. Ing. Bruno Waeser. Germany: Friedr. Vieweg and Sohn Akt.-Ges., Braunschweig. Pp. 2,036. 204 Rm.

THE SOAP MAKERS' DIRECTORY, 1930. London: Simpkin Marshall, Ltd. Pp. 86. 2s. 6d.

MY CASE FOR EMPIRE FREE TRADE. By Lord Beaverbrook. London: The Empire Crusade. Pp. 76. 6d.

66TH ANNUAL REPORT ON ALKALI, ETC., WORKS FOR THE YEAR 1929. By the Chief Inspectors. London: H.M. Stationery Office. Pp. 32. 6d.

Dr. Levinstein's Presidential Address at Birmingham

Industrial Chemistry and Future World Problems

Dr. Herbert Levinstein, President of the Society of Chemical Industry, in his presidential address to the Society at its annual meeting in Birmingham on Tuesday, developed some interesting theories. He predicted that the air, from which our supplies of nitrogen are now synthetically obtained, might also supply synthetic fuel in place of coal, and that the world's raw materials and power would ultimately be drawn from air, water, soil, and sun. Discussing the part of chemistry in increasing the world's food supplies, he argued that nations threatened with starvation would fight for food supplies, and that war or peace in the future might depend on this factor. He pleaded for a national agricultural policy, and described the "Manchester School" doctrine of buying in the cheapest and selling in the dearest market as "the principle of the cheap-jack who moves from fair to fair."

DR. LEVINSTEIN took for his presidential address the picturesque title of "But an apprentice in Nature's workshop," and for about an hour kept his audience keenly interested.

Romances of Modern Chemistry

Beginning with a review of the remarkable achievements of modern chemistry, Dr. Levinstein said that a few years ago he thought organic chemistry the most fascinating of all human pursuits, and the wonderful development of the coal tar colour industry one of the world's greatest achievements. A century ago the distillation of coal to produce gas must have seemed very unlikely to lead to a chemical industry. The dirty, smelly, crude gas was required for lighting. It had to be "scrubbed" if only because otherwise the tar was deposited in the pipes. This coal tar, a nasty, sticky, black material, became interesting later, when it was found that it could be distilled and separated into pure organic chemicals, such as anthracene, naphthalene, toluene, and, above all, benzene. Then in turn it was discovered how to turn benzene into new and more brilliant dyes, new and most attractive perfumes, and new and most popular drugs.

DR. HERBERT LEVINSTEIN.

To-day, however, it seemed a dreadful weakness to have to use as raw materials for these industries the tar from those black, long-buried fossils, degraded celluloses, dead plants, old forgotten forests. Æons passed before they could be used, yet the carbonic acid of the air was the sole source of the carbon contained in coal. The tree and plant knew how to convert this acid into cellulose—the source of coal, coal gas and coal tar. Wind and rain, sun and soil—Aristotle's elements of earth, air, fire and water—were the raw materials of our organic chemical industries. A little sulphur they must have; a little of the halogens; some sodium and lime. The rest was derived from the growing plants or from the animals that lived on plants. If they excepted mining and metallurgy, the various applications of metals and a few rocks and minerals, this was true of all our main industries. Above all, it was true of our very important raw material, Power.

Literally "Living on Air"

It was becoming a matter no longer of choice, but of necessity for the human race to learn to use the air, soil, and sun to the best advantage to make the earth more productive of food and raw material. This was one of the two great tasks of science. The other was how to decrease human suffering by the conquest of disease, which would follow slowly but surely upon an increased knowledge of the subtle chemistry of the living cell, of which so little was yet known. The discovery of how to use the nitrogen of the air to increase the productivity of the soil would remain one of the greatest landmarks in human achievement. But what a contrast there was between the high pressures and high temperatures of the huge plant at Billingham-on-Tees for the synthesis of ammonia and the gentle methods of Nature in the roots of the leguminosæ. That was the characteristic difference between synthetic and natural methods.

Coal Gas from the Air

Having tapped the inexhaustible supplies of atmospheric nitrogen, the next step was to transform another constituent of the air, carbonic acid, without the intervention of the plant, and thus to get, without the interval of a geological age, the raw materials now obtained from coal. The complete reduction of carbonic acid to methane (coal gas) had, in fact, been accomplished. It would certainly not be long before methane became a valuable raw material of the chemical industry. It could, in turn, be almost completely converted in the arc oven into acetylene, and acetylene could be polymerised to a tar about half of which consisted of benzene. Thus they obtained, by the synthetic, instead of the geological, route, direct access to a new source of the products obtained from coal tar. Our available raw material thus became inexhaustible, for carbonic acid existed in balanced quantities in the atmosphere. If time was money, what was the money value of this reaction in terms of time?

Passing of the Coal Age

National wealth was reckoned in terms of coal or oil, that is, of energy stored up geological years ago. The weakness of Great Britain as a manufacturing country was its dependence on fossil-wealth—that is, on coal—for power, instead of on the tides, the waterfalls, the wind, the direct radiation of the sun. Other countries were developing the use of water power for industries on a scale that seemed stupendous compared with the small scale still predominant in this country. Power was being used in increasing amount per head of the population in all industrial countries, and much more rapidly in other countries than here. It was essential we should have the raw material, power, as cheaply as, if not more cheaply than, other nations. Another ten or fifteen generations would see the exhaustion of the world's principal coal deposits. The age of coal was passing. It would have lasted, when it was over, for a less period than the Moorish occupation of Spain, which at the time seemed so important to Christendom, and vanished, leaving behind it nothing but a garden here and there, a palace or two preserved by the conqueror's pride, and a few romantic tales.

Long Range Research Imperative

Dr. Levinstein went on to quote figures to show how water power is replacing coal power, and how the substitution of the growing plant, that is, timber, for coal or oil was impossible. The world could not spare enough acres of actual or possible forest lands, for the world's acres were a fixed quantity, while the world's inhabitants were growing not only in numbers, but also in appetite. "The directing of the great sources of power in Nature for the use and convenience of man" was one of the declared objects of the Institution of Civil Engineers and was so stated in their charter granted a hundred years ago.

"This," said Dr Levinstein, "is precisely the long range research that the Government can do, and ought to do, and does not do It is costly, but necessary. That such long range research is likely to produce results is certain. The losses of the Napoleonic wars were soon made good by the development of steam and coal. The losses of the last war can be made good by learning to use more effectually the natural forces for industrial work. The population of the world to-day is over 2,000 millions. If it continues to increase at the average annual rate of 1 per cent., the world will have doubled its population in 70 years. The two chief competitors for the

world's acres are the production of food and the production of timber (cellulose)."

Food Scarcity a War Peril

Long before there was any actual world shortage, acute problems of great difficulty would arise between the nations that had enough food and timber and those that had not. What was the rest of the world going to do with people who owned large tracts of the earth and would cultivate properly neither their forests nor their fields; people who owned land that could feed us, but which, by their idleness, poverty, ignorance, and selfishness did not feed more than themselves? Were we to expropriate owners who were inefficient cultivators as did the Italian State (which protected agriculture) with remorseless logic? What was to be done with people who multiplied more rapidly than we did, and multiplying, increased their appetites as well as their numbers? Here were some problems for the League of Nations. On their solution might depend peace or war in a generation or two.

A National Agricultural Policy

In Britain, which was densely populated, and where, therefore, land was relatively scarce, the proper utilisation of the land was obviously more important than in countries where land was relatively plentiful. It was therefore most remarkable that the common sense of the people had not forced upon the State a consistent agricultural policy.

The problem was not so complicated as it seemed. In 1928 we had 32¾ million acres under grass and 12¾ million acres of arable land in Great Britain. Was it economically sound to have this proportion of our land grass or not? Surely that was a matter of facts and figures to which the very able technical staff of the Ministry of Agriculture could give an answer. If this was not an economic proportion, then decide on the economic proportion and make it our policy to ensure that every acre devoted to grass or arable was compelled to yield the maximum and not, as to-day was often the case, a minimum of nourishment for the people. From a business point of view, that is, the national business, it was important enough. Seventy million pounds added to the value of our milk and meat production was no negligible matter. It was no negligible matter if we were losing annually a production worth £70,000,000 from our grass crop alone because of the lack of a consistent agricultural policy.

There were 50,000,000 people in this island and the number was still growing. We obtained and could only obtain the greater quantity of our food and raw material by importing from outside our shores. We paid for them, and could only pay for them, by a corresponding export, of which a large portion must consist of manufactured products. In this we differed from nearly all the other great Powers. The United States of America could grow all its food and ought to produce all its timber for years to come. Other European powers were either wholly self-supporting or much more nearly so than we were.

"Manchester School" Cheap-Jack Economics

The business of this country, as seen by the Victorian or so-called "Manchester School" of economics, was to import raw material and food and to export manufactures. That was why they neglected agriculture. This pre-supposed a choice of people abroad willing to take up our manufactures at "good" prices, and a choice of people willing to supply us with food and raw materials at "cheap" prices. Our business, we were told, was to choose the cheapest supplier and sell to the highest bidder. Thus was set up the law that to buy in the cheapest and to sell in the dearest market was the main principle of business.

Why was it ever incorporated into the British Book of Wisdom? How long could one go on paying too little and selling too dear? It was the principle of the cheap-jack who moved on from fair to fair. It was not the maxim for permanent business. Certainly there was not to-day a choice of customers from whom we could pick out the most willing to pay big prices. There was an over-production in the world of manufactured articles, and the world's capacity to overproduce manufactured articles was likely to last for a generation or two. It was extremely unlikely that except during wars, strikes, and for short periods, the world would be, during the next fifty years, short of products which could be manufactured from easily available raw materials. In other words, we should, in the absence of international cartels, always have to sell in competition with people who also had a surplus to sell.

A Trade Maxim

At the moment there was an over-production of agricultural produce; even timber and pulp were still being offered freely at low prices. But whereas the over-productive capacity of the world for manufactures was likely to be permanent, that of food and wood was certainly temporary. In fifty years it might be very different. He thought this was a distinction which we ought to bear in mind. Price was certainly not the only factor under such conditions. To buy in the most reliable and to sell in the most permanent market was a better maxim. To buy where you were certain to get supplies, to sell to customers who were most likely to go on buying from you, was the principal consideration for a country in our situation.

How was this to be attained? Clearly to give preference in buying our food and timber to those who bought our manufactures. Equally clearly those who had food and timber to sell and wanted a permanent buyer, should give preference in buying the manufactured articles they imported to their food and timber customers. There was a special mutual interest between Great Britain and those sparsely populated nations which owned wide acres of food and forest lands, for instance, some of those constituting the British Commonwealth of Nations.

"Big business," Dr. Levinstein declared, "must and does look ahead, but our biggest business—Britain's business—does not look ahead. It is difficult to get its managers to take the long range view. It may be more difficult for us later on, when food and timber are scarcer, to make such an arrangement. Now would appear to be the time to act"

Some Impressions of the Annual Meeting

A Brilliant Presidential Address

BIRMINGHAM, TUESDAY.

THE central position of Birmingham, the confident expectation of a cordial welcome, the prospect of a full and interesting programme, the attractions of a presidential address by Dr. Levinstein, and a Messel Lecture by Lord Brotherton, have combined to bring together a very large attendance of members from all parts of the country. In *The Retort—More or Less Courteous*, the title of the bright little daily bulletin that the committee are publishing throughout the Conference, we were assured that "Birmingham receives you with a smiling face." Birmingham itself, however, was not exactly smiling when we reached the headquarters of the Society at the Grand Hotel. It was wet, and anything but cheerful. But all that the Committee of the Birmingham and Midland Section could do to dispel the gloom was done. The opening reception by Mr. W. A. S. Calder, the chairman, and Mrs. Calder was as cordial as anything could be. A touch of distinction was given to the occasion by the presence of the Lord Mayor and Lady Mayoress. By the end of the evening the delegates, including a very large proportion of ladies, were in very good spirits, looking forward with pleasure to the rest of the week.

The annual meeting in the Midland Institute this morning was, in its conduct, atmosphere and speeches, quite the best one can recall in recent years. To start with, the position of the Society, as disclosed in the annual report, was encouraging. For four years—1925-26, to 1929-30—there had been a small but disquietingly consistent decline in membership—29, 93, 61 and 98. This year the report as originally issued disclosed an increase of 39, and at the meeting itself it was announced that later elections brought up the increase to 46,

making a total of 4,596 against 4,550 at the end of the previous year. This was received as a welcome proof that the membership curve at last had turned from downward to upward, and that the hard work of reconstruction that has been going on was beginning to bear fruit. Another factor was the good conduct of the business and the good speaking. There was no mumbling between the people on the platform as at last year's conference in Manchester, when those even in the front rows could scarcely make out what was being said or what was being done. The meeting was conducted with the dignity and formality called for in the case of the annual meeting of a really important society. In this respect some acknowledgment is due especially to Dr. Colgate and Mr. Harold Talbot. Dr. Colgate, whose first appearance on the platform as treasurer it was, moved the adoption of the accounts in a quite admirable little speech that could be heard by all. The leading features of an elaborate balance sheet were admirably summarised, and without any extravagant congratulations, Dr. Colgate was able to claim a satisfactory position for the present, with good prospects for the future. If all the speakers took this as a model for their business statements, it would add appreciably to the dignity and interest of future meetings. It fell to Mr. Talbot to move the vote of thanks to the retiring president, and here, again, the duty was admirably discharged. People like good and clear speaking to the point at these meetings, and the Society has sufficient wealth at its disposal in this respect if it will only take the trouble to draw upon it with judgment.

These features were in themselves enough to account for the harmonious and cheerful atmosphere that marked the meeting, but the presidential address of Dr. Levinstein brought the morning session to a brilliant close. It was the speech not only of a scientist—"but an apprentice in Nature's workshop," as the picturesque title ran—but of a thinker, a poet, a scientific visionary as well as technician. It fell into three sections: First, a study of the amazing achievements of what may be called synthetic chemistry, and the prediction that more and more we should look for our raw materials to air, water and sun, as our older fossil wealth became exhausted; secondly, a serious, almost grave, examination of the world problems that the scarcity of food and timber (that is, cellulose) might produce unless applied chemistry found a remedy; and, finally, a delightful closing passage on the immanence in Nature of what the lecturer called "the will to work." To say that it was brilliant, imaginative, literary and highly individualist is only another way of saying that the speaker was Dr. Levinstein. The abridged edition occupied some fifty minutes; it was listened to with the closest attention, broken only by periodical expressions of approval at its opinions or ripples of laughter at its witty asides; the prolonged applause at its finish testified to a critical audience's appreciation of a really fine utterance. That this was not a passing impression was shown later by the personal congratulations that poured in.

The luncheon that followed was a very representative gathering, presided over by Mr. Calder, at which the toast of the Birmingham and Midland Section was proposed by Dr. Levinstein, and acknowledged by the chairman. Mr. Calder, happily recovered from the effects of a recent serious accident, gave us a taste of the shrewd and merry qualities which have made him an ideal chairman and enabled him to direct with such effect the activities of the many committees who have co-operated so enthusiastically under his generalship. Far too numerous for personal mention were his associates in the good work, but a reference to Mr. George King, the honorary secretary, brought instant recognition, revived a moment later by another to Mr. E. I. Lewis, the editor of the Birmingham handbook. It was a pleasure to notice three friends from the United States present—Professor Moody, of New York, who expressed the visitors' pleasure at being present; our old and ever-welcome guest, Dr. Ellwood Hendrick; and Dr. Randall, whose geniality at the last New York meeting will long be recalled.

MR. W. A. S. CALDER.

For the rest of the week there is a very full programme of works visits, receptions and tours to places of interest in the Warwickshire country. On Wednesday Dr. A. E. Dunstan is to give a lecture on "The Chemical Aspect of Petroleum," and on Thursday Lord Brotherton is to deliver the Messel Lecture. Lord Brotherton, who was present at the annual meeting of the Society this morning, has selected as his subject "Fifty Years in the Chemical Industry," to be treated largely from the autobiographical point of view. Lord Melchett, who was elected to the presidency in succession to Dr. Levinstein, was unable to be present.

The production of Conference "Handbooks" is now becoming a pleasant form of rivalry. Last year we were told something about the "soul" of Manchester. Birmingham, described alternately as "the toyshop of Europe" and "the marine stores of the world," more modestly lays no claim to any "soul," but it has succeeded in doing very creditably without it. Its unpretentious but very clever handbook is an entirely merry little volume, whose light-hearted wit fails, however, to conceal the erudition and literary taste with which the story of the great Midland capital is told. Particularly good as a piece of compressed history is the account of its chemical and metallurgical developments. The daily bulletin, too, is a clever production, and will constitute an interesting memento.

The Annual Meeting

THE annual general meeting was held in the large lecture theatre of the Midland Institute on Tuesday, Dr. Herbert Levinstein (president) in the chair.

An extraordinary general meeting was first held for the purpose of passing certain alterations in the by-laws to give effect to certain arrangements which have been in operation for some time past in connection with the Bureau of Chemical Abstracts. This was a purely formal matter and was passed without discussion.

The business of the annual general meeting was then proceeded with. The nomination by the Council of Lord Melchett as President for the coming year was unanimously approved, as were also the following nominations for Vice-President, viz., Mr. W. A. S. Calder, Dr. H. Levinstein (the retiring President), Dr. F. L. Pyman, F.R.S., and Mr. H. Talbot.

There were eleven nominations for four vacancies on the Council and the following were elected by ballot: Mr. F. W. Bain, Dr. L. H. Lampitt, Mr. F. A. Greene and Dr. L. A. Jordan. In announcing this result, the President mentioned that the voting had been very close indeed.

The annual report of the Council was then submitted and adopted without comment.

Dr. R. T. Colgate (hon. treasurer) presented the accounts for the past year. These show a credit balance of £337 as compared with £145 in the preceding year, the income last year having been approximately £700 more and the expenditure £500 more than in 1928. The increase in revenue has been almost entirely due to increased advertisement revenue but Dr. Colgate mentioned that the present year appeared likely to show less revenue from this source owing to the depressed condition of trade generally. Nevertheless, he was by no means pessimistic as to the future; indeed, rather the contrary, provided the Council continued to pursue its present cautious policy.

The accounts were adopted without comment.

Messrs. Price, Waterhouse and Co. were re-elected auditors to the Society.

On the motion of the President, seconded by Mr. W. A. S. Calder, a hearty vote of thanks was accorded to Dr. E. W. Smith, the retiring hon. treasurer, and Dr. Colgate, the present hon. treasurer, for their work in this office.

A cordial vote of thanks was also passed to the officers of the Society, including the members of the Local Section Committees and the Hon. Foreign Secretary.

Dr. Levenstein's Address

Dr. H. Levinstein then delivered his presidential address and Mr. H. Talbot proposed a cordial vote of thanks to him both for his address and for his services as president. He commented on the fact that Dr. Levinstein's father had also been president of the Society and on the growing importance of the Society not only nationally but imperially and internationally. It was, he said, only men of outstanding character, energy and genius who could undertake the position of president and Dr. Levinstein possessed those qualities in full measure, and had displayed them constantly during his period of office. Fortunately, the Society would not lose the services of Dr. Levinstein when he left the presidential chair, for he understood they were to have his help in various official positions. As indicating the manner in which Dr. Levinstein had devoted himself to the affairs of the Society during the past two years, Mr. Talbot said it was no exaggeration that Dr. Levinstein's business and to some extent social life had been regulated during that time by the claims of the Society.

Dr. W. Cullen, who seconded the vote of thanks, and endorsed everything Mr. Talbot had said, added that he would have liked to have broken a lance with Dr. Levinstein on economics, but that was neither the time nor the place to do that. There was, however, one point he wished them all to carry away with them. Dr. Levinstein had referred to water power in Canada, but in Scotland there was going begging 250,000 h.p., which could be sold at a price of ·16d. per unit and for the use of which it seemed impossible to attract any industry.

Dr. Levinstein, acknowledging the vote of thanks, said the great thing which had been borne in upon him during his term of office was the very friendly atmosphere associated with the whole of the work of the Society. He looked upon it as essentially a friendly society. One of the things that appealed to him about it was that his father had been president, and Lord Melchett, who was to follow in the presidential chair, was in the same position, his father having also been president of the Society. He expressed his personal thanks to Mr. Pooley, the general secretary, for the great assistance he had given him during his term of office.

It was announced that the following telegram had been sent to the King, who again this year is patron of the Society : " May it please your Majesty, the Society of Chemical Industry in general meeting assembled in Birmingham, desires to thank your Majesty for your gracious patronage and to re-affirm its expression of continued loyalty and devotion."

The Luncheon

At the invitation of the chairman and committee of the Birmingham and Midland Section of the Society, a company of nearly 350 sat down to luncheon at the Grand Hotel, under the chairmanship of Mr. W. A. S. Calder (chairman of the Section).

Dr. H. Levinstein in proposing " The Birmingham and Midland Centre of the Society of Chemical Industry," expressed the sincere thanks of all those attending the meeting for the hospitality offered by the Birmingham Section and remarked that whereas at first only four people had intimated their intention to attend, when the programme was issued the number jumped almost immediately to 150 and then within a few hours to something like 350. In coupling the name of Mr. Calder with the toast, Dr. Levinstein said Birmingham had set a standard which it would be very difficult to improve upon, even for the Jubilee Celebrations in London next year and he did not envy the task of other Centres when, in turn, they invited the Society to hold its annual meeting in their towns. Nothing could exceed the warmth of the welcome and the hospitality they had received in Birmingham, nor the genial atmosphere that prevailed.

Professor Moody (New York), as one of the three American members attending the meeting, also expressed the thanks of the party to the Birmingham Centre for the manner in which they had been received and entertained.

Mr. W. A. S. Calder, responding to the toast, said that the credit for the arrangements in Birmingham must not be given to the chairman of the section because last October, when the arrangements began to be made, somebody arranged that a motor cycle should come into collision with him and put him out of action. (Laughter.) Perhaps that was done so that the Birmingham Centre Committee could show what they could do without their chairman ! There had, however, been a very large number of people concerned with the arrangements and he felt he must mention a few of them. There was Mr. O'Shaughnessy, who placed his long experience at the disposal of the committee ; there was Mr. George King, the hon. secretary of the Section, and there was Mr. Rowell, who had organised the reception the previous evening. Incidentally, Mr. Calder remarked that the Lord Mayor and Lady Mayoress—who had assisted at that reception—had asked that Dr. Levinstein and Mrs. Levinstein should assist at the civic reception on Wednesday evening.

Visits were paid to works in the afternoon and in the evening there was a reception by the Council and Senate of the University of Birmingham.

Annual Report of Council

In its annual report, the Council states that the number of members on the register is 4,896, compared with 4,550 last year. The following table showed the gains and losses in membership during the past five years :—

	1926	1927	1928	1929	1930
	4831	4802	4709	4648	4550
Gains	367	254	314	232	235
Losses	396	347	375	330	192
Net gain or loss	−29	−93	−61	−98	+46
Membership at end of year	4802	4709	4648	4550	4596

While repeating its satisfaction in the improved trend in membership figures, the Council reminds members that the extension of the benefits and service of the Society depends almost entirely on membership increase. In order to encourage younger members, a reduced subscription of £2 during the first three years of membership is scheduled for persons joining under the age of 25.

The Council places on record its deep appreciation of the character and extent of Dr. Levinstein's activities during the year. His counsel and guidance in council and committee have been accompanied by close contact with the membership in the form of visits to many of the local sections. His addresses have added not only to his personal prestige, but to that of the Society, a tribute which also applies to his relations with other societies and institutions during his term of office.

The debt the Society owes him is increased by his year of service as chairman of Council in 1928–29, to be followed by a further year in the same capacity during 1930–31.

Lord Melchett, a vice-president of the Society, has been unanimously nominated by the Council for election as President. Dr. E. W. Smith was forced by pressure of business to resign the office of honorary trasurer, which he filled so successfully for several years. The Council records its appreciation of the efficiency of his service and his devotion to the Society. Dr. R. T. Colgate was appointed to fill the vacacy in December, and has been re-elected, Dr. E. F. Armstrong has been re-elected honorary foreign secretary.

The Council has decided to initiate a series of lectures to be prepared specially and delivered before local sections by men of recognised authority in subjects of importance to the chemical industry. Each lecture will be delivered in at least two sections and the text will not be published before the circuit is completed. The scheme will be put into practice in the autumn of 1931.

Jubilee of the Society

The Society will celebrate in London its fifty years of existence during the week beginning on Monday, July 13, 1931. A specially elected Jubilee Committee with seven sub-committees has been working for some months on the preliminary arrangements, and a programme of a character consistent with the importance of the occasion is now taking shape.

The Council has agreed to the participation of Canadian Sections in the formation of a federating body in Canada.

An invitation has been received from the Nottingham Section of the Society to hold the annual meeting in Nottingham in 1932, and the Council recommends that this be accepted.

The President, with Dr. Longstaff's assistance, has developed a programme for bringing within the ranks of the Society many scattered chemists in distant countries. A special committee is dealing with the extension of this work, and while notable results must lie with the future, indications are not lacking that the movement is gathering momentum.

Chief Inspector's Annual Report on Alkali Works

Pulverised Fuel Problems at Billingham

The sixty-sixth annual report of the Chief Inspector on Alkali etc. Works for 1929—the first to be issued by Mr. W. A. Damon since the retirement of Dr. T. Lewis Bailey—follows much the same lines as former reports, as the following extracts show. The report is issued by H.M. Stationery Office (pp. 32, 6d.) Further extracts will appear next week

THE number of works registered in 1929 was 1,083, which entailed the inspection of 1,975 separate processes. There was thus a reduction of 13 in the number of works and of eight in the number of separate processes as compared with the previous year.

The number of visits of inspection by District Inspectors to registered works during the year was 3,449, in the course of which 2,147 quantitative estimations of the noxious constituents of chimney and other gases, escaping from the processes in operation, were made. In addition, 130 visits of inspection were made to other works, largely for the purpose of making inquiry as to alleged nuisance from processes, which, it was found, were not registrable. 43 such visits were made to artificial silk works, at which 22 quantitative estimations were carried out on the escaping gases. 15 visits were made also to salt glazing works and 136 estimations carried out.

With the growth of artificial silk works, investigation of the gases emitted from the processes employed became a necessity and, at the instance of the Minister of Health, a special report was written by Dr. Bailey and published in 1928. This subject brought with it an entirely new problem, viz., the possibility of the treatment of very large volumes of gases which contain noxious constituents in only small proportions. It is a problem which will, without doubt, have to be considered more and more in the future; in fact, in the case of fuel gases, it has become evident that the removal of the sulphurous constituents (and the grit), at any rate in the case where large installations are concerned, must be seriously considered with a view to reducing atmospheric pollution. The successful treatment of very dilute gases will have far-reaching results and is a problem which deserves the closest attention.

Pulverised Fuel at Billingham

This department has kept in close touch with developments at the Synthetic Ammonia and Nitrate Co.'s works at Billingham, where complaint has been made of the dirt and grit issuing from the chimneys of the power station owing to the use of pulverised fuel for raising steam. The station comprises two main units. One unit consists of six Thompson boilers, and the other of eight International boilers.

A great deal of inconvenience has been undoubtedly caused by the discharge of grit, and the trouble was accentuated by the close proximity of dwelling-houses. The company have fully recognised their responsibilities, and their technicians have worked on the problem with commendable energy. The use of pulverised fuel on such a large scale is, however, unprecedented and the problem is therefore a new one. It is not a case merely of ordering standard and approved appliances, but of long and patient research and experimental work.

In the early part of the year an attempt was made to arrest the grit and ash particles by interposing expansion chambers between each boiler and its chimney. These chambers were in two sections, draughted by a fan to the chimney, and a number of sprays were provided in each in order to wash the grit out of the flue gases. Unfortunately, the expansion chambers, which had cost some thousands of pounds, were a failure, and in August the company decided to try a patent washer, the operation of which depends on the impingement and retention of the gritty particles on wetted surfaces, provided by a number of cylindrical vertical elements, over which an ample supply of water is allowed to flow.

Difficulties arose in connection with the practical application of this washer largely on account of the tendency of the gritty particles to adhere to the surface of the elements, so causing restriction of the gas passage and a consequent rapid falling off of efficiency. Such adhesion could be prevented by the use of a great deal more water than had been originally specified, but here again difficulty and delay arose on account of the considerable structural alterations that would be necessary.

The six Thompson boilers are now completely served by four washers. On the other unit, two washers are already installed and three more are in course of erection. As construction and operation proceeds, various modifications present themselves, but there seems no reason to doubt that such difficulties as remain will now be speedily overcome.

Complaints

Thirty-three complaints were received during the year. In some cases, where complaint has been made, no reasonable cause could be established, and consequently no action was taken. The public do not always realise that the odour, which can usually be noticed in the vicinity of the majority of chemical works, is characteristic of the processes and materials employed and is not necessarily noxious or detrimental to health. It is quite impossible to prevent such an odour entirely although every effort must be, and indeed is, made to reduce it to a minimum.

Operations at registered works have been generally conducted in a satisfactory manner. Where infractions of the Act have occurred, they have been of a minor character, and prompt steps have always been taken to reduce any ill-effects that might result. Consequently, in no case has it been necessary to resort to legal measures.

Alkali and Copper (Wet Process) Works

There has been a considerable decrease in the amount of salt decomposed in every district but one. The reason for this is twofold: first, the increased supplies of pure acid, made synthetically; and, second, the extension of the use of sulphuric acid instead of hydrochloric acid for pickling iron plates. The latter reason bids fair to result in the closing down of more than one work of this class. The result of such diminution in the quantity of salt decomposed has been a much keener market for saltcake, and in several cases manufacturers have been able to clear their stocks. Operations have been carried out satisfactorily, and condensation of hydrochloric acid has, in all instances, been good. Great attention, however, should be given to low-level escapes. The use of suitable fans to create draught is highly to be recommended for this purpose.

The amount of salt decomposed in connection with this class of work in 1929 was as follows:—Leblanc process, 83,094 tons; cylinder process, 33 tons; wet copper process, 10,819 tons.

Cement Works

Considerable complaint has been directed during the year against cement companies operating rotary kilns. Whilst there is little evidence that dust from cement kilns is injurious to health or to vegetation, manufacturers, particularly the larger concerns, have recognised that inconvenience is caused thereby and have shown themselves very ready to co-operate with this department in attempts to abate the trouble. This is as it should be, for it is naturally from the large works that the greater quantity of dust is derived. At the same time, it must not be supposed that the smaller companies are exonerated. They, too, must bear their share in making investigations as to ways and means which can be suitably applied to their works. It is gratifying to be able to report a very considerable advance in the matter of dust deposition from cement works.

Broadly speaking, dust arrestment methods may be divided into four classes:

(1) Arrestment in the kiln itself.

(2) Separation outside the kiln by gravity settlement of the dust particles, either naturally or assisted by water sprays.

(3) Separation outside the kiln by mechanical devices.

(4) Electrostatic deposition.

Smelting Works

(*a*) *Zinc.*—This class of work is largely concerned with the manufacture of zinc from imported zinc blende. There are but three such works, which still employ the old method (which was quite general in 1922) of roasting the ore and allowing the gaseous products, in this case, sulphur dioxide, to pass into the atmosphere. Two of these are quite small

works, but the third is of greater importance. It is interesting to note that, at this work, the equivalent of about 50 tons of sulphuric acid is passed into the atmosphere every week. In view of the great progress which has been made in recent years in dealing with the gases evolved in this process and their conversion into saleable sulphuric acid, this is not a satisfactory state of affairs. Efforts have been made to induce the company to alter their practice, and this matter is now receiving serious attention from the directors. It is anticipated that a definite decision will be reached during the current year as to what is to be done. The company will either come into line with other manufacturers, who are using the contact method for conversion of the sulphur gases, or will abandon the process altogether.

Mr. Littlefield reports that as regards other works treating zinc blende, there is again a decrease to be recorded in the average total acidity of the gases emitted from the contact acid plants connected with the processes. This is very satisfactory, and is due to the constant efforts of the manufacturers to improve the conversion of the gases entering the contact units. There is good reason, moreover, to believe that a still further improvement will be effected during the current year in the new units of plant, which are being erected as the result of experience gained in the past two years. A notable instance of improvement concerns a work where calcination of zinc blende, with the production of sulphuric acid as a by-product, is carried out on a large scale. One thousand tons of acid per week are made by treatment of the roaster gases, after they have undergone a most careful cleansing, in contact units of the Grillo type. The capacity of the plant has been increased by 20 per cent. during the year, and the average acidity of the escaping gases has been reduced by 10 per cent.

For some time past active research and experimental work have been going on with a view to the prevention of the escape of residual gases from the "sintering plant" which is an important integral part of the process. This work has been brought to a completely successful end and there is now no escape from this section of the operation.

(*b*) *Copper.*—At a work in which ore is smelted for the recovery of copper, an electrostatic precipitator has been installed with excellent results. The amount of fume visible at the chimney top has been very noticeably reduced. These electrostatic plants are excellent for the recovery of metallic fume. Unfortunately, owing to high cost, they are not always economically possible.

(*c*) *Lead.*—At a work where galena is smelted for the recovery of lead, a large water fed limestone scrubber was erected in an endeavour to lower the acidity of the chimney gases. Results, however, were not nearly as good as had been hoped for. The company have now decided to erect a large preliminary water scrubber, which should improve conditions in the future.

(*d*) *Tin.*—The price of tin metal has not been good during the year. As a result four works have found it impossible to carry on. It is interesting to note, however, that two new works have come into operation. These are provided with modern machinery for the economical dressing of tin ores, and labour-saving plant has, as far as possible, been installed. The total acidity of the gases issuing from these works' chimneys has been kept at a reasonably low figure. The condensation of the arsenious oxide, which is evolved during the calcination of these ores, has been well effected.

Sulphuric Acid Works

A large proportion of the requirements of this product is met by the output of by-product acid referred to above. The same number of plants have been in operation as in 1928 and much the same conditions have prevailed. The equipment of chamber plants with ammonia oxidation apparatus for the supply of nitrogen oxides has developed considerably, so that there are now about 62 installations at work. We compare more or less favourably with Continental practice in this particular improvement; nevertheless, one would be glad to see it extended still further, for, by means of modern plant, the operation is perfectly simple, and makes for steady working of the chamber system because the supply is continuous—instead of being irregular, as is the case with the potting system. Moreover, the cost of such supply is stated to be only 50 per cent. of that obtained by means of potting. The process also provides an economy and convenience as compared with the use of liquid nitric acid added in the Glover tower. The "roller box" system, which had been in operation for some time at a northern works has now been abandoned; it was found to be costly in operation both as regards upkeep and nitre consumption. It has been replaced by a chamber plant.

There is no further progress to report with regard to the water washing of Gay Lussac gases. It is somewhat to be regretted that this matter has not received greater attention from manufacturers, for, although a nitrous escape does not give a high acidity on testing, yet it is very offensive and is possibly detrimental to health. It is certainly very noticeable and calls attention to itself, with the result that complaint is often likely to be made.

It is reported from a northern district that there has been continued difficulty in obtaining supplies of sulphur and that, as a consequence, several companies have had to change over to pyrites. This has rendered necessary the resumption of dearsenication of the acid.

Sulphuric Acid (Class II) Works

Complaint was made on two occasions of excessive escape from works of this class. In both instances, cascade concentrators were in use. It is very necessary that this type of plant should receive close attention, otherwise there is apt to be excessive low level escape. The possibility of fractures in the basins, which will at once cause a very dense escape, should not be overlooked. Of the complaints in question, one was due to a fracture of basin and the other to general low level fume, which was remedied by a thorough overhaul of the plant.

Oleum plants are becoming more general. In fact, it would appear that contact plants are likely in the future very largely to supersede the chamber process. In connection with these it is now quite usual to adopt some form of electrostatic deposition for the preliminary cleaning of the gases before their entry into the converter.

In most cases, a final soda wash of the gases passing the absorber is effected. By this means the final escape can be reduced to a very low figure and, at the same time, a saleable product is obtained, but in some instances, for various reasons, the procedure is not practicable.

A large unit for the manufacture of acid by the contact process has been erected and will soon be in full operation. The source of sulphur will be gypsum, and cement clinker will also be made as a by-product.

Chemical Manure Works

Owing to the improved demand, there has been during the year an increased production of superphosphate, but the output has not been what it formerly was. The companies owning superphosphate works in Cambridgeshire, Norfolk and Suffolk have amalgamated and now operate under the title of "Fison, Packard and Prentice, Ltd." Plants have been well maintained and escapes have been uniformly low. The percentage condensation of noxious gases varied from 96 to 99·9.

NUMBER OF WORKS REGISTERED.

	1929.	1928.	1927.
Alkali works	39	39	44
Scheduled and other works	1,044	1,057	1,087
Total	1,083	1,096	1,131

AMOUNT OF AMMONIA PRODUCTS MANUFACTURED IN 1929.

Expressed as Sulphate (25¾ per cent. NH_3)—Tons.

From Liquor Produced in—	1929.	1928.	1927.
Gasworks	142,017	145,066	147,162
Other Works (including Coke ovens, Iron works, Producer-gas, Synthetic, etc.	698,466	404,450	252,425
Total	840,483	549,516	399,587

Of the total quantity of ammonia products, the equivalent of 53,288 tons was manufactured as concentrated ammoniacal liquor; the balance 787,195 tons consisted of other ammonia products (sulphate, chloride, nitrate, etc.).

AMOUNT OF TAR PRODUCTS MANUFACTURED IN 1929.

Tar distilled	1,748,589 tons
Pitch produced	511,973 tons

British Chemical Overseas Trade for June

Continued Decline On Last Year's Figures

An all-round decline as compared with the figures for June, 1929, is revealed by the Board of Trade returns of British Overseas chemical trade for last month. Imports totalled £1,015,125, a decline of £175,406, exports at £1,583,768 dropped £260,173, and re-exports at £54,459 were less by £75,324. Over the full six months of this year imports have totalled £6,971,019, or £940,692 less than during the corresponding period of 1929, exports, £11,813,477 (£929,925 less) and re-exports £537,977 (an advance of £46,633.)

Imports

	Quantities. Month ended June 30		Value Month ended June 30,	
	1929.	1930.	1929. £	1930. £
CHEMICAL MANUFACTURES AND PRODUCTS—				
Acetic Anhydride. cwt.	Tons 94		411	
Acid Acetic ..... tons	1,479	515	54,294	19,725
Acid Tartaric .... ,,	3,065	3,416	21,255	21,438
Bleaching Materials ,,	16,324	7,292	20,195	6,018
Borax..... ,,	12,155	12,950	8,790	7,919
Calcium Carbide... ,,	43,642	51,600	27,486	32,592
Coal Tar Products value	—	—	5,184	69,304
Glycerine, crude... cwt.	600	1,742	900	3,142
Glycerine, Distilled ,,	309	1,037	759	2,413
Red Lead and Orange Lead..... cwt.	3,885	7,727	5,576	11,078
Nickel Oxide..... ,,	131	12	617	63
Potassium Nitrate . ,,	8,699	3,916	8,784	3,764
Other Potassium Compounds..... cwt.	46,001	52,569	29,683	31,866
Sodium Nitrate ... ,,	99,342	18,531	50,476	8,934
Other Sodium Compounds..... cwt.	36,006	31,800	26,986	22,500
Tartar, Cream of .. ,,	3,085	2,480	13,848	11,302
Zinc Oxide ..... tons	1,059	1,045	31,148	29,023
All other Sorts...value	—	—	293,702	242,574
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts..... oz.	206,260	15,850	14,477	1,320
Bark Cinchona (Bark Peruvian, etc.) ..cwt.	3,073	2,787	12,807	12,794
Other Sorts ..... value	—	—	192,701	102,744
DYES AND DYESTUFFS—				
Intermediate Coal Tar Products ..... cwt.	256	82	3,421	958
Alizarine ..... ,,	150	11	9,689	397
Indigo, Synthetic.. ,,	—	—	—	—
Other Sorts ..... ,,	5,300	3,250	90,752	85,314
EXTRACTS FOR DYEING—				
Cutch ..... cwt.	5,339	3,894	10,228	7,346
Other Dyeing Extracts cwt.	3,500	2,409	11,358	9,667
Indigo, Natural ... ,,	26	27	705	790
Extracts for Tanning ,,	56,828	92,913	62,784	96,533
PAINTERS' COLOURS AND MATERIALS—				
Barytes, ground .. cwt.	62,283	54,501	13,204	10,918
White Lead (dry).. ,,	12,733	13,498	21,943	22,134
All other Sorts .... ,,	107,306	169,121	146,779	140,144
Total of Chemicals, Drugs, Dyes and Colours .....value	—	—	1,190,531	1,015,125

Exports

CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Sulphuric ... cwt.	7,303	24,337	2,542	4,793
Acid Tartaric ..... ,,	914	1,149	6,286	7,476
Ammonium Chloride (Muriate) ..... tons	239	196	4,536	3,773
Ammonium Sulphate—				
To Spain and Canaries tons	5,096	16,403	49,277	129,486
,, Italy ..... ,,	789	70	7,632	663
,, Dutch East Indies tons	88	1,210	910	10,135
,, China, (including Hong Kong) tons	10,410	10,069	106,902	84,369
,, Japan ..... tons	11,832	2,199	119,712	19,216
,, British West India Islands and British Guiana tons	1,127	830	10,970	6,630
,, Other Countries ,,	10,550	5,210	103,395	41,126
Total ..... ,,	39,892	35,991	398,798	291,627

	Quantities Month ended June 30,		Value Month ended June 30,	
	1929.	1930.	1929. £	1930. £
Bleaching Powder....cwt.	45,046	37,827	13,512	11,192
COAL TAR PRODUCTS—				
Anthracene ..... cwt.	—	—	—	—
Benzol and Toluol.galls.	221,064	5,221	15,846	602
Carbolic Acid ..... cwt.	cwt. 3,054			5,946
Cresylic Acid .... galls.	15,237	79,947	22,411	8,800
Naphtha ..... ,,	7,134	3,011	718	327
Naphthalene (excluding Naphthalene Oil).cwt.	6,968	11,276	2,908	2,923
Tar Oil, Creosote Oil, etc. ..... galls.	2,688,281	2,056,396	71,531	49,234
Other Sorts ..... cwt.	20,334	17,465	13,479	8,562
Total ..... value	—	—	126,893	76,394
Copper, Sulphate of.. tons	2,935	3,127	75,885	67,825
Disinfectants, Insecticides, etc. ..... cwt.	24,581	24,413	58,581	54,677
Glycerine, Crude .... cwt.	1,493	1,465	2,017	1,848
Glycerine, Distilled .. ,,	6,284	48	15,829	219
Total ..... ,,	7,777	1,513	17,846	2,067
POTASSIUM COMPOUNDS—				
Chromate and Bichromate..... cwt.	1,142	1,232	2,309	2,400
Nitrate (Saltpetre). ,,	975	671	1,879	1,246
All other compounds ,,	2,227	7,077	9,317	11,674
Total ..... ,,	4,344	8,980	13,505	15,320
SODIUM COMPOUNDS—				
Carbonate, including Soda Crystals, Soda Ash and Bicarbonate cwt.	417,828	268,652	114,624	74,670
Caustic..... ,,	145,174	112,016	94,527	77,092
Chromate and Bichromate..... cwt.	1,397	1,683	2,294	2,927
Sulphate, including Salt Cake..... cwt.	158,680	77,693	18,034	9,793
All other Compounds ,,	43,894	38,419	38,910	51,838
Total ..... ,,	766,973	498,463	268,389	216,320
Zinc Oxide ..... tons	116	180	4,408	5,159
Chemical Manufactures,etc, all other Sorts....value	—	—	276,938	272,528
Total of Chemical Manufactures and Products (other than Drugs and Dyestuffs)..value	—	—	1,268,119	1,029,151
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts..... oz.	119,455	107,566	13,237	11,707
All other Sorts ... value	—	—	206,455	205,260
Total ..... ,,	—	—	219,692	216,967
DYES AND DYESTUFFS—				
Products of Coal Tar cwt.	12,515	9,061	71,559	73,451
Other Sorts ..... ,,	6,922	6,649	8,499	6,076
Total ..... ,,	19,437	15,710	80,058	79,527
PAINTERS' COLOURS AND MATERIALS—				
Barytes (ground) .. cwt.	1,815	1,400	1,048	784
White Lead (dry).. ,,	3,102	2,188	6,431	4,450
Paints and Colours in paste form..... cwt.	27,135	25,954	54,735	47,859
Paints and Enamels prepared(including Ready Mixed) ..... cwt.	41,930	40,145	131,847	130,159
All other Sorts .... ,,	48,819	46,540	82,011	74,871
Total ..... ,,	122,801	116,227	276,072	258,123
Total of Chemicals, Drugs, Dyes and Colours....value	—	—	1,843,941	1,583,768

Re-exports

	Quantities Month ended June 30, 1929.	Quantities Month ended June 30, 1930.	Value Month ended June 30, 1929.	Value Month ended June 30, 1930.
			£	£
CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Tartaric ..... cwt.	71	69	575	502
Borax..... ,,	657	622	500	349
Coal Tar Products value	—	—	60,451	11
Potassium Nitrate . cwt.	90	54	82	76
Sodium Nitrate ... ,,	624	719	354	361
Tartar, Cream of .. ,,	977	273	4,533	1,429
All other Sorts....value	—	—	22,977	16,657
DRUGS, MEDICINES, ETC—				
Quinine and Quinine Salts..... oz.	18,210	5,554	1,768	530
Bark Cinchona (Bark Peruvian, etc.) .. cwt.	433	141	3,051	803
All other Sorts ... value	—	—	27,430	26,698
DYES AND DYESTUFFS—				
Cutch ..... cwt.	735	1,568	1,262	2,407
All other Sorts .... ,,	92	139	1,268	1,194
Indigo, Natural ... ,,	—	5	—	102
Extracts for Tanning ,,	2,369	615	2,574	645
PAINTERS' COLOURS AND MATERIALS.. ... ,,	892	746	2,599	2,210
Total of Chemicals, Drugs, Dyes and Colours	—	—	129,783	54,459

The Colour Users' Association

Attitude on Expiry of Dyestuffs Act

The incidence of the Dyestuffs (Import Regulation) Act, 1920, on the colour using trades and the progress of British dye manufacturers were dealt with at some length by Sir Henry Sutcliffe Smith (chairman) in his address at the eleventh annual meeting of the Colour Users' Association held at Manchester on Tuesday. He also sketched an interesting scheme, in the form of a compromise between the colour users and manufacturers, which might come into effect on the expiry of the Act.

DURING last year, said Sir Henry Sutcliffe Smith, approximately 7,800 applications for dyestuff importation licences have been dealt with, practically the same number as during the previous year. A scrutiny of these figures is interesting. The licences granted show an increase of 783,766 lb., or 15·5 per cent. over 1928. Despite the continued increase in the production of dyestuffs in the United Kingdom, both in quality and types, the licences granted still show remarkable increases year by year. Once more I draw the attention of the dyeware manufacturers to these figures as evidence of the necessity for continued research and energy in producing what the world is using. It should be mentioned that in 1929 the production of dyestuffs in the United Kingdom showed an increase over 1928 of 4,877,952 lb., or 9·6 per cent., and in 1928 there was an increase of 29 per cent. over 1927, from which it must be inferred that the domestic consumption has increased considerably, both of British and foreign-made colour.

The Licensing Committee has continued to operate a factor of 1·75 times pre-war, when considering applications for licences to import dyestuffs on price grounds, and I am led to believe that, speaking generally, the index figure for British-made dyestuffs is less than that figure. The time, however, has now come for a modification of the 1·75 factor, and this is a matter to which your Council is now directing attention. There is definite evidence of the leading British makers' desire to bring their prices down to the world's lowest level, irrespective of the protection afforded to them by the 1·75 factor, and the official acceptance of a lower factor by the Dyestuffs Advisory Licensing Committee would be a mark of very real progress.

Report on Working of Act

The main work of the Dyestuffs Industry Development Committee throughout the year has been the preparation of a report on the lines I suggested two years ago, namely, a review of the operation of the Dyestuffs (Import Regulation) Act, 1920, since its inauguration. In collaboration with both makers and users, the Committee has now drawn up a very capable and exhaustive report, which meets with the unanimous approval of its members. This report is a fair, impartial and accurate statement of facts, showing the great progress made by the dyeware manufacturers and recording the splendid achievements of British chemists and engineers in overtaking the demands for colours which pre-war were almost entirely supplied by foreign makers, and it contains many valuable statistics which illustrate this progress. At the same time it reviews the incidence of the Prohibition Act on the colour-using industries and clearly proves the disabilities to which the users have been subjected during that period, particularly in the early stages.

From statistics furnished to me by the Board of Trade I am able to report a continued increase in the production of dyestuffs in this country. In 1929 the total production aggregated 55,785,032 lb., or more than six times the 1913 output; 1929 showed a substantial increase of 9·6 per cent. over 1928. The following table shows the yearly output from 1922 to 1929 compared with 1913:—

	lb.	Index figure.
1913.....	9,114,134	100
1922.....	20,802,563	228
1923.....	35,100,719	363
1924.....	33,242,704	365
1925.....	32,693,402	359
1926.....	30,297,000	332
1927.....	39,551,756	434
1928.....	50,907,080	559
1929.....	55,785,032	612

Exports of Dyestuffs and Intermediates

One of the outstanding achievements of the British makers is their increasing output of Vat Colours, since it indicates the growing extent to which the demand for colours with a high standard of fastness is being met.

The pre-war production of dyestuffs in Great Britain amounted to 22 per cent. of the total consumption; in 1929 it exceeded 90 per cent. It has also to be borne in mind that whereas before the war such dyestuffs as were manufactured in this country were largely produced from foreign intermediates, the quantity of intermediates it is now necessary to import is relatively unimportant, the dyestuffs manufacturers either making their own or obtaining their supplies from other manufacturers in the country.

The exports of dyestuffs and intermediates from Great Britain continue to show an increase, as the following figures indicate:—

Year.	Weight. Tons.	Value. £
1913.....	2,434	177,246
1925.....	5,208	847,639
1926.....	3,793	614,419
1927.....	3,892	658,464
1928.....	5,199	806,533
1929.....	7,844	984,222

Apart from the set-back in 1926 due to the coal strike, there has been some progress during the past few years, although it is quite evident that British firms have not made headway to any great extent with the export section of their business. I think, however, the importance of such business is now fully recognised.

I think it will be readily admitted that the Association has been of considerable assistance to colour users throughout the period of the Act. This was a unique form of protection—total prohibition and a licensing system for dyewares not made here—and, but for the guidance of the Association in collaboration collectively with the makers an the Government, the

Act would have imposed too great a burden.

It will be remembered that at our last annual meeting held on July 5, 1929, I made the following statement: "I regret that no response has been made to my gesture of a year ago that the makers and users should meet in a round table conference to discuss the best means of dealing with the situation which will arise at the expiry of the Dyestuffs (Import Regulation) Act, 1920, in January, 1931."

In reply to this gesture, it was only recently that the Association was approached through the makers' official body, and the Association was asked to meet the makers in conference. Your Council have decided to accept this invitation, but they desire that I, as your Chairman, should publicly voice their views to the effect that they are opposed to any further extension of the Act, and that their adherence to the policy of restriction has throughout been subject to the proviso that was incorporated in the Act itself, that it should be operative not for 10 years simply, but for 10 years and *no longer*. The Council also affirmed that they are equally opposed to any equivalent legislation which would hamper the colour using trades in the efficient and economic pursuit of their industries.

The considered views of the Association may be summarised as follows: (1) The Dyestuffs Act has achieved its purpose in assisting to establish the dyemaking industry in this country. (2) The colour users of Great Britain have loyally honoured their pledge to assist in the establishment and development of the dyemaking industry. (3) The users suggest that the burden of the establishment of the industry has not been equitably shared, too large a share having fallen upon them. (4) Users are still dependent upon foreign suppliers for certain of their needs, and it would be a serious handicap if the flow of novelties and speciality dyewares from abroad were obstructed in any way. (5) The users suggest that because of the importance and strength of the leading British dyestuffs makers and additional source of supplies from abroad now available, the serious position of 1914 is not likely to be repeated. (6) The Government pledge to assist the establishment of the industry because of national security cannot be overlooked, but the costs should not fall solely upon the colour-using industries.

Economic Folly

I have endeavoured to give you a fair representation of the official policy of the Colour Users' Association as formulated by the Council; nevertheless, my personal opinion—as I expressed it at our last annual meeting—is still that "it would be economic folly to allow this great industry, so necessary for our trade security and now well on the way to be thoroughly established, to decline," and I feel sure it would be regrettable from every point of view, if any false step were made now which would impair its complete establishment.

Knowing full well the present economic trend in this country towards an extension of Safeguarding, I think the powerful appeal by Lord Melchett, at the annual meeting of Imperial Chemical Industries, Ltd., is one which cannot be ignored. If I may venture a personal opinion—which I do with diffidence—I suggest that a compromise between the users' point of view, which I have expressed, and that of the manufacturers, might be reached in the consideration of the following scheme: —If, after examination by the interested parties, it is agreed that a further limited period is really necessary, then I suggest that protection should be afforded only to those dyestuffs of which the British makers have definitely established the manufacture in this country, down to the end of the existing Act. This list of colours would be scheduled, as the protected or safeguarded list, and I would only include in this list those colours which, by agreement with the users, it has been established are definitely equivalent to the best products made abroad. This would of necessity exclude those colours which to-day are the subject of controversy between makers and users. All other dyestuffs, both new and improvements on existing types, should be allowed free entry.

Under such a scheme, where definite prohibition is established for over 80 per cent. of the British users' needs, the user would require to have adequate safeguards to avoid exploitation in the price charged. Where a user could show a lower price quoted by a foreign manufacturer—not a dumping price—unless the British makers were prepared to meet that price, then a licence should be granted for the importation of the colour, even if it was on the protected list.

Overseas China Clay Trade in June

Imports

THE return of imports of china clay, including china stone, into Great Britain and Northern Ireland, registered in the month of June, is as follows:—

COUNTRY WHENCE CONSIGNED.	QUANTITY. Tons	VALUE £
Germany and Total	10	55

Exports

Exports of china clay, including Cornish or china stone, the produce of Great Britain and Northern Ireland, during June, were:—

COUNTRY OF DESTINATION.	QUANTITY Ton	VALUE £
Finland	3,430	6,763
Sweden	1,563	3,370
Norway	1,731	2,672
Denmark	338	1,065
Germany	4,095	8,030
Netherlands	5,247	12,152
Java	100	260
Belgium	4,664	8,183
France	2,411	5,612
Switzerland	111	228
Portugal	20	85
Spain	2,048	4,644
Italy	1,182	2,951
China	7	50
United States of America	9,531	20,880
Mexico	200	800
Peru	3	13
Chile	—	15
Argentine Republic	3	23
Irish Free State	9	42
Union of South Africa	8	42
British India	331	1,510
Madras	2	11
Bengal, Assam, Bihar and Orissa ..	100	370
Straits Settlements	—	6
Australia	7	84
Canada	160	671
Total	37,301	80,532

Analytical Chemist's Failure

First Meeting of Creditors

THE first meeting of creditors was held on Thursday, July 10, at the London Bankruptcy Court, under the failure of Mr. Charles Jerome Hedley Thornton, described as an analytical chemist, of 28, Buckingham Gate, and lately of Windsor House, Victoria Street, Westminster.

According to the debtor's statements, he registered in 1925 Hedley-Thornton Corporation, Ltd., as analytical chemists and brokers and merchants dealing in all kinds of chemicals. Subsequently he was interested in the flotation of Hedley-Thornton Sales Corporation, Ltd., International Research and Development Corporation, Ltd., English Artificial Cotton Production and Marketing Corporation, Ltd., and Irish Artificial Flax and Cotton Corporation, Ltd. The claim of the petitioning creditor is in respect of a promissory note for £1,000 signed by the debtor and another person, the proceeds being used to finance one of the debtor's companies.

The debtor estimates his liabilities at £30,000 and cannot place any value at present on the assets, which consist of contracts which should have matured this year. The failure is attributed partly to the Hatry crash, which prevented the raising of public funds for the English Artificial Cotton Corporation; also to the refusal of the petitioning creditor to allow sufficient grace to enable to be carried through certain contracts under which the debtor asserts that he would have received more than sufficient to pay all claims in full.

A resolution was passed for Mr. Parkin S. Booth, C.A., to act as trustee and administer the estate in bankruptcy.

From Week to Week

A SUPERPHOSPHATE factory with a production capacity of 40,000 tons has recently been commenced at Kristchew, Russia.

HISTORICAL SCIENTIFIC APPARATUS which escaped the recent fire at the home of Lord Rayleigh, at Terling, Essex, has now been presented to the Science Museum, South Kensington.

RECENT WILLS include Mr. Walter Heap, of Rochdale, dyer and finisher, chairman of Samuel Heap and Sons, Ltd., Rochdale, and chairman of the Boarshaw Raising and Finishing Co., Ltd., of Middleton, £15,459.

FATAL INJURIES were sustained by a storekeeper at the works of Synthetic Ammonia and Nitrates, Ltd., at Billingham, on Thursday, July 10, when a bale of ammonia bags, weighing about half a ton, toppled over and fell on him.

THE CHILEAN SENATE, after making several minor amendments, has given approval to the Bill for the creation of the "Cosana" Co. to consolidate all Chilean nitrate interests in one company. A Bill was also approved authorising the payment of about £500,000 as bonus for the year 1928–29.

CONVERSATIONS between representatives of the European nitrogen industry, which were commenced at Ostend at the end of June, have recently been continued in Paris and progress, it is announced, has been made in reconciling opposing interests.

AN AGREEMENT for exchange of stock, it is understood, has been entered into between the South Metropolitan Gas Co. and the Commercial Gas Co., which serves the London boroughs of Stepney and Poplar and parts of Hackney, Shoreditch, Bethnal Green and West Ham. As a result of this step practically the whole of the London area will now be served by the South Metropolitan and the Gas Light and Coke Companies.

SPEAKING at the annual summer meeting on Saturday last of the Cornish Institute of Engineers, which was devoted to visits of inspection to china clay works, wolfram mines and slate quarries in North Cornwall, Mr. A. R. Davies, manager of the Rosemellyn China Clay Works, Roche, said a little more co-operation between the china clay industry and the Institute of Engineers would do good, and he added that the time might be opportune very soon for a branch of the Institute to be formed in the china clay district and affiliated to the Institute.

ABOUT TWENTY PUBLIC SCHOOLBOYS seeking to enter industry under the scheme organised by Imperial Chemical Industries came before the selection committee in London on Wednesday. The scheme which has been developed in conjunction with 150 public schools in the United Kingdom, provides for the selection of candidates, while they are still at school, but guarantees employment at a commencing salary of £300 to £400 a year only after they take a first or second class honours degree at the University. It is calculated that I.C.I. can at present absorb 20 to 30 boys a year in this way.

THE STANDARD OIL COMPANY of New York announces the organisation of the Hydro Patents Company, comprising 17 oil companies, and representing 80 per cent. of the United States' refining capacity, for the purpose of future control within the United States of the hydrogenation process of refining owned by the Standard and the I.G. Farbenindustrie. The process has been under development during the past three years, and it is claimed that through it double the quantity of petrol is obtainable from crude oil. It has proved especially successful with Venezuelan crude oil, from which the petrol yield has hitherto been small.

A FIRE broke out on Monday evening at the premises of Forbes, Abbott and Lennard, Ltd., chemical manufacturers, of Iceland Wharf, Autumn Street, Old Ford, London, involving a still containing 3,000 gallons of anthracene and petroleum. Using a new chemical extinguisher, the firemen managed to avert the danger of an explosion and only one-third of the contents of the still was destroyed. The firemen had to use gas-masks to get near to the still, and at one period the occupants in nearby houses were warned to leave by the police. A building used as a machine room and store and the contents were slightly damaged by fire, smoke and water.

AN ORDER for 80 steel waggons of 50 tons capacity for the conveyance of sulphate of ammonia has been placed with R. Y. Pickering and Co. by the L.N.E.R.

THE LIBRARY of the Chemical Society will be closed for stock-taking from Monday, August 4, until Saturday, August 16 inclusive, and will close each evening at 5 o'clock from August 18 to September 13.

MR. F. WEINREB, 16, Devonshire Square, London, E.C., has been appointed sole agent for the sale in Great Britain and Ireland of the Raschig Rings, formerly supplied by Dr. F. Raschig, of Ludwigshafen, Germany.

A CIVIC VISIT was paid by the Mayor and Corporation of West Hartlepool to Horden Colliery on Monday, when an inspection was made of the new dry-cleaning plant, which is the largest in Europe, the by-product coke ovens and other interesting features.

A NATIONAL SETTLEMENT of the wages question in the glass trade is stated to be in prospect, and several firms have intimated their willingness to accept the latest offer of the men's representatives—to agree to a reduction of 6d. a turn for workmen and servitors and 4d. a turn for footmakers.

DORMAN, LONG AND CO., LTD., have decided to close down their Clarence Iron and Steel Works, although the coke ovens and by-product plants at Port Clarence are to continue. The number of blast furnaces in operation on the North-East coast will now be reduced to twenty-eight out of the 93 erected.

AN INCREASE OF CAPITAL from £400,000 to £500,000 was approved at a meeting of the shareholders of Lovering China Clays, Ltd., on Tuesday, for the purpose of acquiring the works and merchanting organisation of the West Carclaze China Clay Co., and, should the directors deem it desirable, other similar properties.

THE FIRST AWARD of the Melchett medal, founded by Lord Melchett to mark the completion of two years' service as active President of the Institute of Fuel, will be made at the Institute conference in London on October 22. The award will be made annually for original research or work of an outstanding character involving the scientific preparation or use of fuel and will be without restriction as to the nationality of the recipient.

WHEN FOUR CHANDLERS were summoned at Bootle on Monday for selling liquid soap containing more than 3 per cent. phenols, not labelled "poison," it was stated for the police that the case was brought to let the public understand the state of affairs with regard to the sale of poisons. In dismissing the case on payment of costs, the chairman said the bench thought the fault lay with the Order in Council in connection with this Act rather than with the retailers of the soap.

DR. E. F. ARMSTRONG, the newly elected chairman of the Association, received the guests and presided at the annual dinner in London on Thursday, July 10, of the Association of British Chemical Manufacturers. The speakers included Mr. G. M. Gillett, M.P. (Department of Overseas Trade), Sir Atul Chatterjee (High Commissioner for India), Dr. G. C. Clayton, Professor H. E. Armstrong, Vice-Admiral Backhouse, Mr. J. Arthur Reavell, Mr. Davidson Pratt and others. A report of the annual meeting held earlier in the day will appear next week.

UNIVERSITY NEWS.—*Manchester:* The Council has appointed Mr. A. C. Bottomley as chemist in the Department of Cancer Research. Mr. Leslie Arndell has been appointed Demonstrator in Pharmaceutics, and Mr. E. G. Gaul, Lecturer in Chemistry, a member of the Board of the Faculty of Science. Dr. Walton has become a representative of the University on the governing body of Dalton Hall, in succession to Professor Weiss. *Edinburgh:* The University Court has received intimation of the approval by His Majesty in Council of Ordinance Edinburgh No. 55 (Regulations for degrees in Science in Technical Chemistry). *London:* Dr. Alexander Robertson, now University Reader in Chemistry at East London College, has been elected to a Readership in Biochemistry at the London School of Hygiene and Tropical Medicine.

Obituary

DR. HARVEY WASHINGTON WILEY, a former chief chemist of the United States Department of Agriculture and late Professor of Agricultural Chemistry at the George Washington University, on June 30, aged 85.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Accepted Specifications

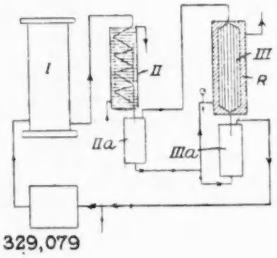
329,049 and 329,056. DYES. Imperial Chemical Industriesl Ltd., Millbank, London, and R. Brightman, Crumpsal, Vale Chemical Works, Blackley, Manchester. Application date, February 21, and February 25, 1929.

329,049. Monoazo and primary disazo dyes are obtained by combining the diazotised oxamic acid derivatives of 4 : 4^1-diamino-diphenyl-mono- or tri-sulphide with coupling components. In the case of primary disazo dyes, one molecular proportion of the diazo component may be replaced by a corresponding proportion of another diazo component. The oxalyl group may be removed by hydrolysis and the resulting aminoazo, aminodisazo, or diaminodisazo compounds may be diazotised or tetrazotised and coupled with components to obtain disazo, trisazo, or tetratrisazo dyes. The products dye cellulose esters or regenerated cellulose materials in level shades, according to the coupling components used. The examples given include 4-aminodiphenyl-sulphide-4^1-oxamic acid → (alkaline) phenyl-2 : 5 : 7-acid for viscose, 4-aminodiphenyl-sulphide-4^1-oxamic acid → 1-phenyl-3-methyl-5-pyrazolone for acetate silk, 4-aminodiphenyl-trisulphide-4^1-oxamic acid → salicylic acid for acetate silk, 4-aminodiphenyl-trisulphide-4^1-oxamic acid → 1- (4^1-sulpho) phenyl-3-methyl-5-pyrazolone for wool, and several others.

329,056. Disazo dyestuffs for regenerated cellulose materials are obtained by tetrazotising a diamino-diphenyl free from acid groups, *e.g.*, phenolic, nitro, sulphonic, or carboxylic in which either no, or not more than one, amino group occupies a *p*-position with respect to the diphenyl linkage, and coupling with two molecular proportions of coupling components, at least one of which is an aminonaphthol-sulphonic acid or an N-substituted derivative. An example which dyes viscose brown is 3 : 3^1-diamino-diphenyl ⇄ salicylic acid and 2 : 8 : 6-acid.

329,079. AMMONIA SYNTHESIS. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 14, 1929.

To separate ammonia from uncombined nitrogen and hydrogen, the gas from the reaction vessel I passes through a



329,079

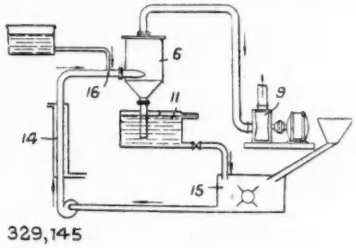
water-cooled condenser II, and then to a condenser III. The ammonia condensate from the vessels II*a*, III*a*, is passed through the jacket R of the condenser III at 1·2 atmospheres, and evaporated to cool the gases within. The uncombined gas is returned to the reaction vessel.

329,135. PURIFYING COAL GAS. W. D'Leny, Norton Hall, The Green, Norton-on-Tees, and Imperial Chemical Industries, Ltd., Millbank, London. Application date, April 26, 1929.

Coal gas is purified from cyanogen and sulphuretted hydrogen by passing over a falling liquid film consisting of an alkaline solution containing ferric oxide or hydroxide in suspension. The liquor is regenerated by exposure to air.

329,145. CALCIUM NITRATE. Appareils et Evaporateurs Kestner, 7, Rue de Toul, Lille, France. Application date, May 3, 1929. Addition to 279,037. (See THE CHEMICAL AGE, Vol. XVII, p. 622.)

Calcium carbonate is treated with nitric acid in the presence of calcium nitrate solution to dissipate the heat of reaction in a larger mass, and avoid loss of nitrogen oxides. A sediment of calcium carbonate is fed into a tank 15, and mixed with



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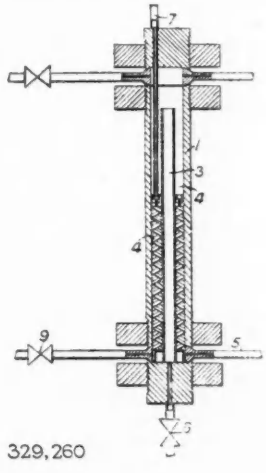
calcium nitrate solution from a tank 11. The suspension is pumped through a cooler 14, nitric acid is added at 16 and passed into a cyclone separator 6 to break up the froth. Calcium nitrate collects in the tank 11, and carbon dioxide escapes at 9.

329,200. POTASSIUM AND OTHER NITRATES. B. Uebler and Kaliforschungs-Anstalt Ges., 5, Schonebergerstrasse, Berlin. Application date, June 17, 1929.

Potassium chloride is treated with nitric acid, or nitrous gases in aqueous solution, to obtain potassium nitrate, and the evolved gases containing nitrosyl chloride and chlorine are passed over hot iron or quicklime to decompose the nitrosyl chloride and absorb the chlorine as ferric or calcium chloride. The nitrogen oxides are thereby recovered. Alternatively, the gases may be passed over iron at ordinary temperature to form a compound $FeCl_3NOCl$, which is then heated to recover pure nitrosyl chloride for subsequent decomposition. The nitrosyl choride may be liquefied and removed, or the mixture may be heated to decompose the nitrosyl chloride,and cooled with addition of air to produce nitrogen peroxide and chlorine which are fractionally distilled.

329,260. CHEMICAL APPARATUS. Imperial Chemical Industries, Ltd., Imperial Chemical House, Millbank, London. International date, October 29, 1928.

Reactions with liquid under pressure are effected by introducing the liquids through pipes 7, 9 into a pressure-resisting



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container 1 having an inner tube 3 projecting upwards. If the reaction product is miscible with the liquid entering at 9 it overflows with it into the tube 3 and is withdrawn at 6. If the product is heavy and immiscible it is withdrawn at 5.

329,263. DYES. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, June 4, 1929.

Dibenzanthrone or its bromo derivatives are treated with bromine in the absence of any diluting medium and in the presence of iodine, sulphur, selenium, metals or metal compounds such as iron, copper, mercury and antimony. An example is given of the treatment of dibenzanthrone.

329,326. FERTILIZERS. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, February 15, 1929.

Specification No. 328,005 (see THE CHEMICAL AGE, Vol. XXII, p. 582) describes the preparation of carbamates by treating solutions of metal salts in liquid ammonia with carbon dioxide. In this invention, the carbamate is not separated, but the whole mixture is evaporated to obtain mixtures of salts. In an example of the treatment of potassium nitrate in this manner, the final evaporation leaves as residue a mixture of potassium carbamate and ammonium nitrate. Ammonium phosphate may be added before evaporation. In another example, calcium chloride is dissolved in liquid ammonia containing ammonium nitrate, and treated with carbon dioxide and evaporated. A mixture of calcium carbamate, ammonium nitrate and ammonium chloride is obtained.

329,331. DESTRUCTIVE HYDROGENATION. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, November 12, 1928.

In the destructive hydrogenation or pressure treatment of carbonaceous materials the products are fractionated in a series of upright columns by indirect heat exchange with gases or liquids flowing in counter current. The cooling agents are the raw materials or the gases produced in the process, and the separation may be effected under the pressure of the process.

329,335. SYNTHETIC RESINS. Imperial Chemical Industries, Ltd., Imperial House, Millbank, London, H. H. Morgan, Revelstoke, Slough, and A. A. Drummond, The Lodge, White Cottage, Iver, Bucks. Application date, November 13, 1928.

A substituted polyhydric alcohol and a polybasic acid anhydride are condensed in the presence of glyceryl esters of fatty acids which do not contain a hydroxyl group, such as drying oils, with or without an organic solvent. The alcohols are those with one or two hydroxyl groups either replaced by an acid radicle such as chlorine, *e.g.*, chlorhydrins, or esterified by a mono-basic organic acid such as benzoic or acetic acid, *e.g.*, glyceryl monobenzoate, mono- or di-acetin, or those substituted by an alkyl or aryl group to form ethers, *e.g.*, glyceryl, monophenyl or monotolyl ether. The alcoholic substances used are derived from glycol, glycerol or erithrytol, and the fatty acid esters include linseed oil, wood oil, perilla, soya, and olive oils. The solvents used include "tetraline," white spirit, kerosene, turpentine and heavy naphtha. In an example, a resin obtained from phthalic anhydride, glyceryl monobenzoate and wood oil is thinned with naphtha and a drier added to form a varnish. Other examples are given of the manufacture of varnishes with resins obtained from phthalic anhydride, glycerol, monochlorhydrin and wood oil; and phthalic anhydride, glyceryl monobenzoate and tung oil.

329,353. DYEING AND PRINTING. A. Carpmael, London, From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main. Germany. Application date, November 16, 1928.

Azo dyes are produced by combining a suitable coupling component with a diazo-amino compound obtained from a diazo compound and a primary amine containing 2 carboxy groups or 1 carboxy and 1 sulphonic group, splitting of the diazo-amino compound or development of the dyestuff being effected with an acid reagent. In an example, cotton is impregnated with 2-naphthol-3-carboxylic acid-2¹-naphthylamide and developed with the acidified diazo amino body from 4-chlor-2-toluidine and 4-sulpho-2-amino-benzoic acid. In another example, the mixture obtained by evaporating solutions of the diazo-amino body from 4-chlor-2-anisidine and 4-sulpho-2-amino-benzoic acid and 2-naphthol-3-carboxylic acid-2¹-anisidide is made up with turkey red oil, urea, starch tragacanth and water, printed on the fibre and developed in a formic acid sodium sulphate bath. Several other examples of products employed in printing are given.

329,356. DYES. R. S. Barnes, J Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth. Application date, December 11, 1928.

An increased yield of red sulphuric ester derivatives from dyestuffs of the flavanthrone series is obtained by the action of a tertiary base-sulphuric anhydride compound in the presence of a metal and a tertiary base, in the presence also of an alkaline reacting salt. Thus, flavanthrone and 3 : 3¹-dichlorflavanthrone are heated with copper or copper bronze, pyridine-sulphuric anhydride, and pyridine, in the presence of sodium acetate or sodium borate, the melts cooled with ice, and the products precipitated with soda ash. Other alkaline reacting salts, such as phosphates of alkali or alkaline earth metals, may be used.

329,357 and 329,364. DYES. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, December 17, 1928 and January 19, 1929.

329,357. Alkyl or aryl ethers of pyranthrone are treated with halogen or agents which split off halogen in the presence of solvents such as nitrobenzene, di- or tri-chlorbenzene, or of sulphuric acid, chlorsulphonic acid, and with the aid of halogenating catalysts such as sulphur, iodine, antimony, iron, mercury, or iron chloride. Examples are given of the chlorination of monomethoxy-pyranthrone to obtain a product which dyes cotton brown; bromination of monoethoxy-pyranthrone to obtain a product which dyes cotton blue-red; bromination of mono-ω-chlorethoxy-pyranthrone, Bz : Bz¹-dimethoxy-pyranthrone, di-guaiacol ether of pyranthrone, diphenoxy-pyranthrone.

329,364. The red vat dystuff obtained by condensing the dianhydride of 1·4 : 5·8-naphthalene tetracarboxylic acid with *o*-phenylene diamine is treated with acid oxidising agents, *e.g.*, chromic acid and permanganate. Mild oxidising conditions give vat dyestuffs dyeing reddish-orange shades, and more vigorous oxidising conditions give products dyeing more yellowish shades.

329,375 and 329,389. BENZOIC ACID. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, February 18, 1929. Addition to 307,343.

329,375. Benzoic acid contaminated with naphthoquinones and phthalic anhydride is purified by reducing the naphthoquinones and hydrating the anhydride, and then leaching out the impurities with water. The reduction may be effected with a metal and acid, or with the crude benzoic acid in the fused state or dissolved in an inert organic solvent not miscible with water, and treating with an aqueous solution or suspension of an acid-binding agent in amount corresponding to the phthalic acid. Sodium bisulphite may be used as the reducing and the acid-binding agent. The benzoic acid may be further purified by active carbon and recrystallization. In examples, the reduction may be effected with a magnesium-aluminium alloy and acetic acid, or the crude acid may be dissolved in xylene and treated with sodium bisulphite.

329,389. In the above process, if phthalic anhydride is the only impurity, the reduction step may be omitted. Examples are given in which the benzoic acid is melted under dilute caustic soda solution and the purified acid separates on cooling, and in which the benzoic acid is melted under an aqueous suspension of lime.

NOTE.—Abstracts of the following specifications, which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention:—306,097 (I.G. Farbenindustrie Akt.-Ges.), relating to aliphatic carboxylic acids, see Vol. XX, p. 412; 307,303 (I.G. Farbenindustrie Akt.-Ges.), relating to monoazo dyestuffs, see Vol. XX, p. 454; 307,306 (I.G. Farbenindustrie Akt.-Ges.), relating to anthraquinone derivatives, see Vol. XX, p. 454; 307,481 (I.G. Farbenindustrie Akt.-Ges.), relating to vat dyestuffs of the anthanthrone series, see Vol. XX, p. 479; 307,709 (Deutsche Hydrierwerke Akt.-Ges.), relating to sulphonation of alcohols of high molecular weight, see Vol. XX, p. 479; 307,838 (I.G. Farbenindustrie Akt.-Ges.), relating to vat dyestuffs, of the anthraquinone series, see Vol. XX,

p. 479; 307,881 (J. Blumenfeld), relating to oxides of titanium, see Vol. XX, p. 479; 307,937-8 (I.G. Farbenindsutrie Akt.-Ges.), relating to rubber-like products see Vol. XX, p. 507; 308,365 (I.G. Farbenindustrie Akt.-Ges.), relating to δ-alkyl- and δ-aryl-quinolines and their homologues, see Vol. XX, p. 508; 309,024 (Selden Co.), relating to catalytic removal of hydrogen or oxygen-containing groups from organic compounds, see Vol. XX, p. 547; 309,583 (Selden Co.), relating to catalytic oxidation of ammonia, see Vol. XX, p. 595; 312,908 (Rohm and Haas Akt.-Ges.), relating to manufacture of hydrogen chloride or bromide, see Vol. XXI, p. 114; 314,858 (Selden Co.), relating to contact sulphuric acid process, see Vol. XXI, p. 224.

Specifications Accepted with Date of Application

308,660. Azo dyestuffs on the fibre, Manufacture of. I.G. Farbenindustrie-Akt.-Ges. March 24, 1928. Addition to 306,844.

308,662. Alkylated phenols, Manufacture of. Schering-Kahlbaum Akt.-Ges. March 23, 1928.

308,725. Titanium compounds, Manufacture of. Titanium Pigment Co., Inc. March 27, 1928.

309,031. Thymol, Preparation of. Rheinische Kampfer-Fabrik Ges. April 3, 1928. Addition to 326,215.

309,047. Solid titanyl and titanic sulphates. Manufacture of. I.G. Farbenindustrie Akt.-Ges. April 3, 1928.

310,011. Dyestuffs, Manufacture of. Soc. of Chemical Industry in Basle. April 19, 1928.

311,347. Vat dyestuffs off the anthanthrone series, Manufacture of. I.G. Farbenindustrie Akt.-Ges. May 9, 1928. Addition to 286,669.

312,175. Acid wool dyestuffs, Manufacture of. I.G. Farbenindustrie Akt.-Ges. May 18, 1928. Addition to 299,721.

313,887. Vat dyestuffs, Manufacture of. I.G. Farbenindustrie Akt.-Ges. June 18, 1928.

315,356. Polymerizing hydrocarbons of the butadiene series. I.G. Farbenindustrie Akt.-Ges. July 12, 1928.

318,960. Acetic anhydride and acetic aldehyde, Manufacture of. Soc. des Usines Chimiques Rhône-Poulenc. September 13, 1928.

331,185. Aldehydes from α-oxides of hydrocarbons, Manufacture of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) March 18, 1929.

331,186. Valuable products from ethylene and/or its homologues, Manufacture of. H. D. Elkington. (*Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij.*) March 18, 1929.

331,190. Pig iron, Production of. M. Neumark. March 22, 1929.

331,216. Tanning agents, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) March 25, 1929.

331,217. Acid wool dyestuffs of the anthraquinone series, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) March 25, 1929.

331,236. Working up of natural and industrial salt mixtures. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) March 25. 1929.

331,247. Azo-dyestuffs insoluble in water, Manufacture of. O. Y. Imray. (*I.G. Farbenindustrie Akt.-Ges.*) March 21, 1929.

331,265. Carrying out polymerisations, and apparatus therefor. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) March 23, 1929.

331,269. Condensation products from anthraquinone derivatives, Manufacture of. A. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) March 26, 1929.

331,451. Compound fertilisers and sodium bicarbonate, Manufacture of. Soc. Chimique de la Grande-Paroisse Azote et Produits Chimiques. November 20, 1928.

331,468. Catalytic apparatus. Selden Co. December 22, 1928.

331,472. Molybdates of the alkaline-earth metals and of magnesium, Production of. I.G. Farbenindustrie Akt.-Ges. December 8, 1928.

Applications for Patents

[In the case of applications for patents under the International Convention, the priority date (that is, the original application date abroad which the applicant desires shall be accorded to the patent) is given in brackets, with the name of the country of origin. Specifications of such applications are open to inspection at the Patent Office on the anniversary of the date given in brackets, whether or not they have been accepted.]

Blumenfeld, J., and Triggs, W. W. Manufacture of titanium dioxide. 20,562. July 7.

—— Manufacture of titanium dioxide. 20,634. July 8.

Böhme Akt.-Ges., H. T. Production of primary alcohols. 20,923. July 10. (Germany, September 23, 1929.)

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of condensation products. 20,555. July 7.

—— Manufacture of cellulose esters. 20,556. July 7.

—— Technical hydrolysis of thiocyanic acid, etc. 20,712. July 8.

—— Manufacture of azo dyestuffs. 20,713. July 8.

—— Manufacture of triazine derivatives. 20,825. July 9.

—— Production of X-ray photographs. 20,826. July 9.

—— Manufacture of derivatives of 3-nitro-4-hydroxy-benzamide. 20,827. July 9.

—— Manufacture of complex metal salts. 20,971. July 10.

—— Manufacture of iodomethane sulphonic acid, etc. 21,081. July 11.

—— Manufacture of iodomethane sulphonic acid, etc. 21,172. July 12.

Chemieverfahren Ges. Production of potassium nitrate. 21,018. July 11. (Germany, August 14, 1929.)

—— Working up crude phosphate, etc., to mixed fertiliser. 21,019. July 11. (Germany, August 14, 1929.)

—— Working up sylvinitic crude salts to potassium sodium nitrate, etc. 21,020. July 11. (Germany, August 23, 1929.)

Compagnie Nationale de Matières Colorantes et Manufactures de Produits Chimiques du Nord Réunies Etablissements Kuhmann. Manufacture of dyes containing chromium. 20,969, 20,970. July 10. (France, November 13, 1929.)

Craig, T. J. I, Crundall, S. F. W., P. and Spence and Sons, Ltd. Preparation of titanium compounds. 21,129. July 12.

Crundall, S. F. W., Llewellyn, I. P., and P. Spence and Sons, Ltd. Preparation of calcium sulphate. 21,130. July 12.

Gaudit, J. Dyeing, etc. 20,522. July 7. (France, August 2, 1929.)

Hailwood, A. J., and Imperial Chemical Industries, Ltd. Manufacture of sulphonated fatty-acid derivatives. 20,899. July 10.

Heilbron, I. M., Imperial Chemical Industries, Ltd., and Irving, F. Manufacture of dyes, etc. 20,526. July 7.

Hooley, L. J., Scottish Dyes, Ltd., Thomas, J., and Wilson, J. S. Preparation of dyestuff derivatives. 20,824. July 9. (January 16, 1929.)

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Desulphurisation of gases, etc. 20,540. July 7.

—— Manufacture of artificial masses. 20,541. July 7.

—— Manufacture of organic compounds. 20,542. July 7.

—— Apparatus for drying and low temperature carbonisation. 20,543. July 7.

—— Apparatus for heating liquids capable of being decomposed. 20,702. July 8. (October 25, 1929.)

—— Manufacture of cyanates, etc. 20,703. July 8.

—— Apparatus for manufacture of lubricating oils, etc. 20,905. July 10.

—— Apparatus for low temperature carbonisation. 21,101. July 11.

—— Production of wetting, etc., agents. 21,102. July 11.

—— Production of lacquers, films, etc. 21,103. July 11. (March 15, 1929.)

—— Welding. 21,165. July 12.

—— Manufacture of iodomethane sulphonic acid, etc. 21,172. July 12.

I.G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs. 20,697. July 8. (Germany, July 8, 1929.)

—— Multistage apparatus for mixing, stirring, etc. 20,709. July 8. (Germany, July 13, 1929.)

—— Manufacture of acetone soluble primary acetates of cellulose. 20,828. July 9. (Austria, July 9, 1929.)

—— Manufacture of cellulose nitro-acetates. 21,082. July 11. (Germany, July 11, 1929.)

Imperial Chemical Industries, Ltd. Conversion of organic compounds. 20,507. July 7. (United States, July 5, 1929.)

—— Purification of gases. 20,525. July 7.

—— and Tyrer, D. Production of sulphur. 21,030, 21,033, 21,034. July 11.

—— Manufacture of anhydrous organic compounds. 21,035. July 11.

—— Removing phenols from oils, tars, etc. 21,036. July 11.

—— Coating iron with lead. 21,133. July 12.

Kell, K. Production of gaseous sulphur compounds. 20,672. July 8. (Switzerland, July 8, 1929.)

—— Obtaining pure sulphur. 20,673. July 8. (Switzerland, July 8, 1929.)

McGlynn, R. P. Manufacture of sulphonated fatty acid derivatives. 20,899. July 10.

Oehme, H. Producing concentrated gaseous hydrochloric acid 20,169. July 3. (Germany, April 22.)

Patrick, J. C. Manufacture of olefine polysulphide plastic compounds. 20,115. July 2. (United States, September 19, 1929.)

Riedel-E. de Haën Akt.-Ges., J. D., and Rowley, H. E. G. Manufacture of hydrogen peroxide. 21,183. July 12.

Schering-Kahlbaum Akt.-Ges. Manufacture of mixed fatty aromatic ketones. 20,366. July 4. (Germany, July 9, 1929.)

Urbain, E. Manufacture of ammonium potassium superphosphate, etc. 20,375. July 4. (France, August 29, 1929.)

—— Manufacture of ammonium phosphate. 20,376. July 4. (Germany, May 8.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID, CHROMIC.—1s. 0¾d. per lb. d/d U.K.

ACID HYDROCHLORIC.—Spot, 3s. 9d. to 6s. per carboy d/d, according to purity, strength and locality.

ACID NITRIC, 80° Tw.—Spot £20 to £25 per ton, makers' works according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA (ANHYDROUS).—Spot, 11d. per lb., d/d in cylinders.

AMMONIUM BICHROMATE.—8d. per lb. d/d U.K.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.

BLEACHING POWDER, 35/37%.—Spot, £7 10s. per ton d/d station in casks, special terms for contracts.

BORAX, COMMERCIAL.—Crystals, £13 10s. per ton; granulated, £12 10s. per ton; powder, £14 per ton. (Packed in 1 cwt. bags carriage paid any station in Great Britain. Prices quoted are for one ton lots and upwards).

CALCIUM CHLORIDE (SOLID), 70/75%.—Spot, £4 15s. to £5 5s. per ton d/d in drums.

CHROMIUM OXIDE.—9½d. and 10d. per lb. according to quantity d/d U.K.

CHROMETAN.—Crystals, 3¼d. per lb. Liquor, £18 10s. per ton d/d U.K.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 7d. to 1s. 11d. per gall. pyridinised industrial, 1s. 9d. to 2s. 1d. per gall.; mineralised 2s. 8d. to 2s. 11d. per gall. 64 O.P., 1d. extra in all cases. Prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE CRYSTALS AND GRANULAR.—4½d. per lb. nett d/d U.K., discount according to quantity; ground ½d. per lb. extra.

POTASSIUM CHLORATE.—3¾d. per lb., ex-wharf, London, in cwt. kegs.

POTASSIUM CHROMATE.—8d. per lb. d/d U.K.

SALAMMONIAC.—Firsts lump, spot, £42 10s. per ton d/d station in barrels. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE, UNGROUND.—Spot, £3 7s. 6d. per ton d/d station in bulk.

SODA ASH, 58° E.—Spot, £6 per ton, f.o.r. in bags, special terms for contracts.

SODA CAUSTIC, SOLID, 76/77°E.—Spot, £14 10s. per ton, d/d station.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton, d/d station or ex depot in 2 cwt. bags.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE, REFINED.—Spot, £10 10s. per ton d/d station in bags.

SODIUM BICHROMATE CRYSTALS.—3¾d. per lb. nett d/d U.K., discount according to quantity. Anhydrous ¾d. per lb. extra.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.b. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM CHROMATE.—3¼d. per lb. d/d U.K.

SODIUM NITRITE.—Spot, £19 per ton, d/d station in drums.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SILICATE, 140° Tw.—Spot, £8 5s. per ton, d/d station returnable drums.

SODIUM SULPHATE (GLAUBER SALTS).—Spot, £4 2s. 6d. per ton, d/d address in bags.

SODIUM SULPHIDE SOLID, 60/62%.—Spot, £10 5s. per ton d/d station in drums. Crystals—Spot, £7 10s. per ton d/d station in returnable casks.

SODIUM SULPHITE, PEA CRYSTALS.—Spot, £13 10s. per ton, d/d station in kegs. Commercial—Spot, £9 per ton, d/d station in bags.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7d. to 7½d. per lb. Crude 60's, 1s. 11d. to 2s. per gall. July/December.

ACID CRESYLIC 99/100.—2s. 2d. to 2s. 4d. per gall. B.P., 5s. per gall. 97/99.—2s. 1d. to 2s. 2d. per gall. Refined, 2s. 7d. to 2s. 10d. per gall. Pale, 95%, 1s. 9d. to 1s. 10d. per gall. 98%, 2s. Dark, 1s. 6d. to 1s. 8d.

ANTHRACENE.—A quality, 2d. to 2½d. per unit. 40%, £4 10s. per ton.

ANTHRACENE OIL, STRAINED, 1080/1090.—4½d. to 5½d. per gall. 1100, 5½d. to 6d. per gall.; 1110, 6d. to 6½d. per gall. Unstrained (Prices only nominal).

BENZOLE.—Prices at works: Crude, 10d. to 11d. per gall.; Standard Motor, 1s. 5d. to 1s. 6d. per gall.; 90%, 1s. 7d. to 1s. 8d. per gall.; Pure, 1s. 10d. to 1s. 11d. per gall.

TOLUOLE.—90%, 1s. 9d. to 1s. 11d. per gall. Pure, 1s. 11d. to 2s. 3d. per gall

XYLOL.—1s. 5d. to 1s. 10d. per gall. Pure, 1s. 8d. to 2s. 1d. per gall

CREOSOTE.—Cresylic, 20/24%, 6¾d. to 7d. per gall.; Heavy, for Export, 6¼d. to 6¾d. per gall. Home, 4d. per gall. d/d. Middle oil, 4½d. to 5d. per gall. Standard specification, 3d. to 4d. per gall. Light gravity, 1½d. to 1¾d. per gall. ex works. Salty, 7½d. per gall.

NAPHTHA.—Crude, 8¼d. to 8¾d. per gall. Solvent, 90/160, 1s. 3d. to 1s. 3½d. per gall. Solvent, 95/160, 1s. 4d. to 1s. 6d. per gall. Solvent 90/190, 1s. to 1s. 2½d. per gall.

NAPHTHALENE, CRUDE.—Drained Creosote Salts, £4 10s. to £5 per ton. Whizzed, £4 10s. per ton. Hot pressed, £8 per ton.

NAPHTHALENE.—Crystals, £12 5s. per ton. Purified Crystals, £14 10s. per ton. Flaked, £14 to £15 per ton.

PITCH.—Medium soft, 46s. to 47s. 6d. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 3s. 9d. to 4s. per gall. 90/160, 3s. 6d. to 3s. 9d. per gall. 90/180, 1s. 9d. to 2s. 3d. per gall. Heavy prices only nominal.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID GAMMA.—Spot, 3s. 9d. per lb. 100% d/d buyer's works.

ACID H.—Spot, 2s. 3d. per lb. 100% d/d buyer's works.

ACID NAPHTHIONIC.—1s. 5d. per lb. 100% d/d buyer's works.

ACID NEVILLE AND WINTHER.—Spot, 2s. 7d. per lb. 100% d/d buyer's works.

ACID SULPHANILIC.—Spot, 8½d. per lb. 100% d/d buyer's works.

ANILINE OIL.—Spot, 8½d. per lb., drums extra, d/d buyer's works.

ANILINE SALTS.—Spot, 8½d. per lb. d/d buyer's works.

BENZALDEHYDE.—Spot, 1s. 8d. per lb., packages extra, d/d buyer's works.

BENZIDINE BASE.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.

BENZOIC ACID.—Spot, 1s. 8½d. per lb. d/d buyer's works.

o-CRESOL 30/31° C.—£3 1s. 10d. per cwt., in 1 ton lots.

m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots.

p-CRESOL 34·5° C.—1s. 9½d. per lb., in ton lots.

DICHLORANILINE.—1s. 10d. per lb. f.o.r. works.

DIMETHYLANILINE.—Spot, 1s. 9½d. per lb., drums extra d/d buyer's works.

DINITROBENZENE.—8d. per lb.

DINITROCHLORBENZENE.—£74 per ton d/d.

DINITROTOLUENE.—48/50° C., 7½d. per lb.; 66/68° C., 9d. per lb. f.o.r. works.

DIPHENYLAMINE.—Spot, 1s. 8d. per lb. d/d buyer's works.

a-NAPHTHOL.—Spot, 1s. 11d. per lb. d/d buyer's works.

B-NAPHTHOL.—Spot, £65 per ton in 1 ton lots, d/d buyer's works.

a-NAPHTHYLAMINE.—Spot, 1s. per lb. d/d buyer's works.

B-NAPHTHYLAMINE.—Spot, 2s. 9d. per lb. d/d buyer's works.

o-NITRANILINE.—5s. 11d. per lb.

m-NITRANILINE.—Spot, 2s. 6d. per lb. d/d buyer's works.

p-NITRANILINE.—Spot, 1s. 8d. per lb. d/d buyer's works.

NITROBENZENE.—Spot, 6½d. per lb, 5-cwt. lots, drums extra, d/d buyer's works.

NITRONAPHTHALENE.—9d. per lb.

R. SALT.—Spot, 2s. per lb. 100% d/d buyer's works.

SODIUM NAPHTHIONATE.—Spot, 1s. 6½d. per lb. 100% d/d buyer's works.

o-TOLUIDINE.—Spot, 8d. per lb., drums extra, d/d buyer's works.

p-TOLUIDINE.—Spot, 1s. 9d. per lb. d/d buyer's works.

m-XYLIDINE ACETATE.—3s. 1d. per lb. ex works.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 15s. to £10 5s. per ton. Grey, £16 10s. to £17 10s. per ton. Liquor, 9d. per gall.

ACETONE.—£78 per ton.

CHARCOAL.—£6 to £8 10s. per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

WOOD CREOSOTE.—1s. 9d. per gall., unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 8d. to 3s. 11d per gall. Solvent, 4s. to 4s. 3d. per gall.

WOOD TAR.—£3 10s. to £4 10s. per ton

BROWN SUGAR OF LEAD.—£38 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 3d. per lb. according to quality; Crimson, 1s. 3d. to 1s. 5d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 8d. to 1s. 10d. per lb.

BARYTES.—£5 10s. to £7 per ton, according to quality.

CADMIUM SULPHIDE.—4s. 10½d. to 5s. 3d. per lb.

CARBON BISULPHIDE.—£26 to £28 per ton, according to quantity; drums extra.

CARBON BLACK.—4d. to 4 1/16d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£40 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
DIPHENYLGUANIDINE.—2s. 9d. per lb.
LITHOPONE, 30%.—£20 to £22 per ton.
SULPHUR.—£9 10s. to £13 per ton, according to quality.
SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
SULPHUR PRECIP. B.P.—£55 to £60 per ton, according to quantity.
ZINC SULPHIDE.—8d. to 11d. per lb

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£37 per ton, ex wharf London, barrels free.
ACID, ACETYL SALICYLIC.—2s. 9d. to 2s. 11d. per lb., according to quantity.
ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., for synthetic product, according to quantity. Solely ex Gum, 1s. 6d. per oz.; 50-oz. lots, 1s. 3d. per oz.
ACID, BORIC B.P.—Crystal, £31 per ton; powder, £32 per ton; For one ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 6d. to 1s. 6¾d. per lb., less 5%.
ACID, GALLIC.—2s. 11d. per lb. for pure crystal, in cwt. lots.
ACID, MOLYBDIC.—5s. 3d. per lb. in ½ cwt. lots. Packages extra. Special prices for quantities and contracts.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.
ACID, SALICYLIC, B.P. PULV.—1s. 5d. to 1s. 8d. per lb. Technical.—1s. to 1s. 2d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 1½d. per lb., less 5%.
ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.
AMIDOL.—7s. 6d. to 9s. per lb., d/d.
AMIDOPYRIN.—7s. 9d. to 8s. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 9d. per lb., according to quantity. 18s. per lb. ex Gum.
AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.
AMMONIUM MOLYBDATE.—4s. 9d. per lb. in ½ cwt. lots. Packages extra. Special prices for quantities and contracts.
ATROPHINE SULPHATE.—9s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. to 3s. 3d. per lb.
BISMUTH CARBONATE.—6s. 6d. per lb.
BISMUTH CITRATE.—6s. 9d. per lb.
BISMUTH SALICYLATE.—6s. 7d. per lb.
BISMUTH SUBNITRATE.—5s. 6d. per lb.
BISMUTH NITRATE.—Cryst. 4s. 4d. per lb.
BISMUTH OXIDE.—8s. 6d. per lb.
BISMUTH SUBCHLORIDE.—8s. per lb.
BISMUTH SUBGALLATE.—6s. 9d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts. 11d. per lb.
BORAX B.P.—Crystal, £21 10s. per ton; powder, £22 per ton; For one ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
BROMIDES.—Ammonium, 1s. 9d. per lb.; potassium, 1s. 5½d. per lb.; granular, 1s. 5d. per lb.; sodium, 1s. 8d. per lb. Prices for 1 cwt. lots.
CALCIUM LACTATE.—B.P., 1s. 1½d. to 1s. 3d. per lb., in 1-cwt. lots.
CAMPHOR.—Refined flowers, 3s. to 3s. 2d. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 1d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 4½d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—1s. to 1s. 1d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE, 40%.—37s. per cwt., in barrels, ex wharf.
GUAIACOL CARBONATE.—4s. 6d. to 4s. 9d. per lb.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 3s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 2s. 5d. per lb.; potassium, 2s. 8½d. per lb.; sodium, 2s. 7½d. per lb., in 1 cwt. lots, assorted.
IRON AMMONIUM CITRATE.—B.P., 2s. 5d. per lb. for 28 lb. lots. Green, 3s. 1d. per lb., list price. U.S.P., 2s. 4d. to 2s. 7d. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8½d. to 8¾d. per oz., according to quantity.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.
MENTHOL.—A.B.R. recrystallised B.P., 17s. per lb. net; Synthetic, 9s. 6d. to 11s. per lb.; Synthetic detached crystals, 9s. 6d. to 11s. per lb., according to quantity; Liquid (95%), 9s. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, crystals, 8s. 4d to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph, B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 3d. to 1s. 5d. per lb
METHYL SULPHONAL.—18s. 6d. to 20s. per lb.
METOL.—9s. to 11s. 6d. per lb. British make.
PARAFORMALDEHYDE.—1s 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—3s. 9d. to 4s. 1d. per lb.
PHENAZONE.—5s. 6d. per lb.
PHENOLPHTHALEIN.—5s. 11d. to 6s. 1½d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—91s. 6d. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 2s. 3d. per lb. in 28 lb. lots. Smaller quantities 1d. per lb. more.
POTASSIUM FERRICYANIDE.—1s. 7½d. per lb., in 125 lb. kegs
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins
RESORCIN.—2s. 10d. to 3s. per lb., spot.
SACCHARIN.—43s. 6d. per lb.
SODIUM BENZOATE B.P.—1s. 9d. per lb. for 1-cwt. lots.
SODIUM CITRATE, B.P.C., 1911, AND U.S.P. VIII.—1s. 11d. per lb., B.P.C. 1923, and U.S.P. IX—2s. 3d. per lb. Prices for 28 lb. lots. Smaller quantities 1d. per lb. more.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—95s. to 100s. per cwt. net. Crystals, 2s. 6d. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 10d. to 2s. 2d. per lb. Crystal, 1s. 11d. to 2s. 3d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £29 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—9s. 6d. to 10s. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 1s. 9d. to 2s. per lb.
THYMOL.—Puriss, 8s. 3½d. to 9s. 2d. per lb., according to quantity. Natural, 12s. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—12s. per lb.
AMYL ACETATE.—2s. 6d. per lb.
AMYL BUTYRATE.—5s. per lb.
AMYL CINNAMIC ALDEHYDE.—10s. per lb.
AMYL SALICYLATE.—2s. 6d. per lb.
ANETHOL (M.P. 21/22° C.).—8s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 10d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 10d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—13s. 3d. per lb.
COUMARIN.—11s. per lb.
CITRONELLOL.—8s. per lb.
CITRAL.—8s. per lb.
ETHYL CINNAMATE.—6s. 6d. per lb.
ETHYL PHTHALATE.—2s. 9d. per lb.
EUGENOL.—9s. 3d. per lb.
GERANIOL (PALMAROSA).—18s. per lb.
GERANIOL.—7s. 6d. to 10s. per lb.
HELIOTROPINE.—6s. per lb.
ISO EUGENOL.—11s. 6d. per lb.
PHENYL ETHYL ACETATE.—11s. per lb.
PHENYL ETHYL ALCOHOL.—9s. per lb.
RHODINOL.—46s. per lb.
SAFROL.—2s. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN, EX CLOVE OIL.—13s. to 15s. per lb. Ex Guaiacol, 12s. 6d. to 13s. 9d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. per lb.
ANISE OIL.—5s. per lb.
BERGAMOT OIL.—10s. 3d per lb.
BOURBON GERANIUM OIL.—19s. per lb.
CAMPHOR.—Brown, 1s. 9d. per lb.
CANANGA.—Java, 9s. per lb.
CASSIA OIL, 80/85%.—4s. 9d. per lb.
CINNAMON OIL LEAF.—6s. 9d. per oz.
CITRONELLA OIL.—Java, 2s. 6d. per lb., pure, Ceylon, 2s. 6d. per lb., c.i.f. U.K. port.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, July 17, 1930.

THERE has been a fair demand for a number of chemical products during the past week and little alteration in prices is to be reported.

General Chemicals

ACETONE.—There is a regular demand at £71 10s. to £80 per ton according to quantity and the market is firm.

ACETIC ACID.—In satisfactory request and price is unchanged at £36 10s. for 80% technical and £37 for 80% edible.

ACID CITRIC.—Only in quiet request with price unchanged at 1s. 6½d. to 1s. 7d. per lb. less 5%.

ACID LACTIC.—An improved demand has been received with 50% by weight Pale Quality quoted at £42 per ton and the market firm.

ACID OXALIC.—In good demand with the market firm at £30 7s. 6d. to £32 per ton according to quantity.

SULPHATE OF ALUMINA.—Continues active and firm at £8 to £8 15s. per ton for the 17/18% iron free quality.

ARSENIC.—There is only a small demand at about £15 15s. per ton free on rails at the mines.

CREAM OF TARTAR.—The price is now steadier at about 92s. to 92s. 6d. per cwt. ex wharf London, with a slightly better demand.

COPPER SULPHATE.—Steady at £21 10s. to £22 per ton free on rails, with a fair inquiry.

FORMALDEHYDE.—Has been in good request and the market shows no change at £32 per ton.

LEAD ACETATE.—White quality is quoted at £40 per ton and brown at £39 per ton with a small demand.

LEAD NITRATE.—Only in quiet request at £30 to £32 per ton.

LITHOPONE.—Unchanged at £19 15s. to £23 per ton according to grade.

CARBONATE OF POTASH.—In quiet request at £27 per ton for 96/98% arsenic free quality.

PERMANGANATE OF POTASH.—A firmer tendency is displayed with a better demand. Price is very firm at 5½d. per lb. for B.P. Needle Crystals.

SODIUM BICHROMATE.—In fair demand at 3⅜d. per lb.

SODA HYPOSULPHITE.—Commercial crystals £8 10s. per ton and photographic crystals in good request at £14 15s. per ton.

SODIUM SULPHIDE.—Unchanged at British makers' prices, at which there is a fair demand.

TARTAR EMETIC.—Unaltered at about 11d. per lb., with only a small demand.

ZINC SULPHATE.—Steady at £12 10s. per ton.

Coal Tar Products

The Coal Tar Product market still remains quiet, but stocks are generally lower and supplies for forward delivery are becoming increasingly difficult to secure. Prices, however, remain steady.

MOTOR BENZOL.—Firm, at about 1s. 5½d. to 1s. 6½d. per gallon f.o.r.

SOLVENT NAPHTHA.—Unchanged, at about 1s. 2½d. to 1s. 3d. per gallon.

HEAVY NAPHTHA.—Remains at about 1s. 1d. per gallon f.o.r.

CREOSOTE OIL.—Quoted at 3d. to 3½d. per gallon f.o.r. in the North, and at 4d. to 4½d. per gallon in London.

CRESYLIC ACID.—Remains at 2s. per gallon for the 98/100% quality, and at 1s. 10d. per gallon, ex works, for the dark quality 95/97%.

NAPHTHALENES.—The firelighter quality is quoted at £3 10s. to £3 15s. per ton, the 74/76 quality at £4 to £4 5s. per ton, and the 76/78 quality at about £5 per ton.

PITCH.—Remains at 37s. 6d. to 42s. 6d. per ton, f.o.b. East Coast Port, with little demand.

The following additional prices have been received :—

Carbolic Acid.—Prices are unchanged at 7d. to 7½d. per lb. The market is quiet.

Cresylic Acid.—In some quarters it is said to be easier of tone, but generally speaking prices remain steady. 98/100% at 1s. 11d. to 2s. Special grades at 2s. 6d. to 2s. 8d. per gallon.

Vanillin from clove oil is quoted at 13s. 6d. to 14s. 6d. per lb. Guaiacol material is being offered at 12s. 6d. upwards.

Salicylic Acid B.P.—1s. 5d. to 1s. 8d. per lb., according to quantity.

Latest Oil Prices

LONDON, July 16.—LINSEED OIL was quiet. Spot, ex mill, £35 ; July and August, £30 17s. 6d. ; September-December, £30 10s.; and January-April, £29 10s., naked. RAPE OIL was inactive. Crude, extracted, £34 ; technical, refined, £35 10s., naked, ex wharf. COTTON OIL was steady. Egyptian crude, £27 ; refined common edible, £32 ; and deodorised, £34, naked, ex mill. TURPENTINE was slow and 3d. to 6d. per cwt. lower. American, spot, 35s. 9d. ; August, 35s. 6d. ; September-December, 36s. 3d. ; Russian, spot, 33s. 9d.

HULL.—LINSEED OIL, spot, £33 ; July, £32 5s. ; August, £31 15s. ; September-December, £31 5s. COTTON OIL.—Egyptian crude, spot, £28 5s. ; edible refined, spot, £30 10s. ; technical, spot, £30 5s. ; deodorised, spot, £32 10s. PALM KERNEL OIL.—Crude, naked, 5½ per cent., spot, £28. GROUNDNUT OIL.—Crushed/extracted, spot, £31 ; deodorised, spot £35. SOYA OIL.—Extracted, and crushed, spot, £28 ; deodorised, spot, £31 10s. RAPE OIL.—Crushed/extracted, spot, £32 10s. ; refined, spot, £34 10s. per ton. TURPENTINE.—Spot, 38s. 3d. per cwt., net cash terms, ex mill.

Scottish Coal Tar Products

MORE interest has been taken in cresylic acid during the week, but prices remain stationary. Other products are mainly quiet, with prices easy, except refined tar, which is steady.

Cresylic Acid.—A few export orders have been placed, but market is still overstocked. Pale 99/100%, 1s. 10d. to 1s. 11d. per gallon ; pale 97/99%, 1s. 9d. to 1s. 10d. per gallon ; dark 97/99%, 1s. 8d. to 1s. 9d. per gallon ; high boiling, 1s. 9d. to 1s. 11d. per gallon ; all in bulk quantities, ex maker's works.

Carbolic Sixties.—Orders are scarce, and makers' quotations show a further drop to about 2s. to 2s. 2d. per gallon, f.o.r. works.

Creosote Oil.—The market position is unchanged, with prices easy for most grades. Specification oil, 3d. to 3½d. per gallon ; gas works ordinary, 3¼d. to 3½d. per gallon ; washed oil, 3¼d. to 3⅜d. per gallon ; all free on rails works.

Coal Tar Pitch.—Quiet. The value remains nominal at 47s. 6d. per ton, f.a.s. Glasgow for export, and about 50s. per ton, f.o.r. works for home trade.

Blast Furnace Pitch.—The demand is limited and controlled prices remain unaltered at 30s. per ton, f.o.r. works for home trade and 35s. per ton, f.a.s. Glasgow for export.

Refined Coal Tar.—In good demand, and quotations remain steady at 3½d. to 4d. per gallon, f.o.r. makers' works in buyers' barrels.

Blast Furnace Tar.—Dull at 2⅜d. per gallon.

Crude Naphtha.—Only small quantities are being produced in this area, and 4d. to 4½d. is obtainable for prompt delivery.

Water White Products.—Steady in value, although makers could deal with more orders. Motor benzole, 1s. 6½d. to 1s. 7d. per gallon ; solvent, 90/160, 1s. 3d. to 1s. 4d. per gallon ; heavy solvent 90/190, 1s. 1d. to 1s. 2d. per gallon ; all f.o.r. works.

Nitrogen Fertilisers

Sulphate of Ammonia.—Export.—On account of the protracted discussions between nitrogen producers, no price scales for the year 1930/31 have been announced. In the meantime prices as low as £6 17s. 6d. per ton, f.o.b. U.K. port in single bags, basis 20·6% nitrogen have been quoted. In the United States the import duty of $5 (gold) per ton of 2,000 lb. has been removed. This has led to some activity in that market. Offers at $35 per ton of 2,000 lb. have been reported. However, there as here, the tendency is for buyers to hold off. *Home.*—As prices have not yet been announced for the new season there is no activity in this market, buyers preferring to await actual prices before accepting some of the low offers which emanate from the continent.

Nitrate of Soda.—It is not now expected that nitrate prices will be announced before July 28.

South Wales By-Products

THERE is no material change in South Wales by-product activities. The call for pitch remains small and quotations are nominal at from 43s. to 45s. per ton, f.o.b. Patent fuel makers and other big users appear to be waiting for an all-round industrial improvement, so that the pitch prospects are not bright. Heavy naphtha remains weak at from 11d. to 1s. 1d. per gallon, but solvent has a fair call and quotations are steady at from 1s. 2d. to 1s. 4d. per gallon. Motor benzol is steady at from 1s. 3d. to 1s. 5d. per gallon.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing this firm's independent and impartial opinions.*

Glasgow, July 16, 1930.

THE Scottish heavy chemical market has shown a decided improvement in regard to export business, but the home trade continues to be dull.

Industrial Chemicals

ACETONE B.G.S.—£71 10s. to £80 per ton, ex wharf, according to quantity. Inquiry remains satisfactory.

ACID ACETIC.—Prices ruling are as follows:—Glacial 98/100%, £53 to £64 per ton; pure, £37 10s. per ton; technical 80%, £37 10s. per ton, ex wharf.

ACID BORIC.—Granulated, £22 per ton; crystals, £23 per ton; powder, £24 per ton, packed in 1 cwt. bags free, delivered Great Britain in 1 ton lots and upwards.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC 80° quality.—£24 10s. per ton, ex station, full truck loads.

ACID OXALIC 98/100%.—On offer at the same price, viz., 3¼d. per lb., ex store. Offered from the Continent at 3⅛d. per lb., ex wharf.

ACID SULPHURIC.—£3 2s. 6d. per ton, ex works, for 144° quality; £5 15s. per ton for 168°. Dearsenicated quality, 20s. per ton extra.

ACID TARTARIC B.P. CRYSTALS.—Quoted 1s. 4d. per lb., less 5% ex wharf. On offer for prompt delivery from the Continent at 1s. 4½d. per lb., less 5% ex wharf.

ALUMINA SULPHATE.—Quoted at round about £8 15s. per ton, ex store.

ALUM, LUMP POTASH.—Now quoted £8 7s. 6d. per ton, c.i.f. U.K. ports. Crystal meal, about 2s. 6d. per ton less.

AMMONIA ANHYDROUS.—Quoted 10¼d. per lb., containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton; powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE.—Rather easier, and spot material now obtainable at round about £30 per ton, ex wharf. On offer for shipment from China at about £27 per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Quoted £18 per ton, ex wharf, prompt shipment from mines. Spot material still on offer at £19 15s. per ton, ex store.

BARIUM CHLORIDE.—In good demand and price about £11 per ton, c.i.f. U.K. ports. For Continental material our prices would be £10 per ton, f.o.b. Antwerp or Rotterdam.

BLEACHING POWDER.—British manufacturers' contract price to consumers unchanged at £6 12s. 6d. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers' price, £4 15s. per ton to £5 5s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports.

FORMALDEHYDE 40%.—Now quoted £33 10s. per ton, ex store. Continental material now on offer at about £34 per ton, ex wharf.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 per ton, ex wharf.

LEAD, RED.—Price now £34 10s. per ton, delivered buyers' works.

LEAD, WHITE.—Quoted £53 10s. per ton, c.i.f. U.K. ports.

LEAD, ACETATE.—White crystals quoted round about £39 to £40 per ton, ex wharf. Brown on offer at about £2 per ton less.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64 O.P., quoted 1s. 8d. per gallon, less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4½d. per lb., delivered U.K. or c.i.f. Irish ports, with an allowance for contracts.

POTASSIUM CARBONATE.—Spot material on offer at £26 10s. per ton, ex store, offered from the Continent at £25 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99¾/100% POWDER.—Quoted £25 10s. per ton, ex wharf. Crystals, 30s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—Quoted 5¼d. per lb. ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Spot material quoted 7d. per., lb., ex store. Offered for prompt delivery from the Continent at about 6¾d. per lb., ex wharf.

SODA, CAUSTIC.—Powdered 98/99%, £17 10s. per ton, in drums, £18 15s. per ton in casks. Solid 76/77% £14 10s. per ton in drums, £14 12s. 6d. per ton for 70/72% in drums, all carriage paid buyers' station. Minimum 4-ton lots. For contracts 10s. per ton less.

SODIUM BICARBONATE.—Refined recrystallised £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3⅜d. per lb. delivered buyers' premises, with concession for contracts.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality 27s. 6d. per ton extra. Light soda ash £7 13s. per ton, ex quay, minimum 4-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots. Prices for this year unchanged.

SODIUM NITRATE.—Chilean producers now offer at £10 2s. per ton, carriage paid buyers' sidings, minimum 6-ton lots, but demand in the meantime is small.

SODIUM PRUSSIATE.—Quoted 5¼d. per lb., ex store. On offer at 5d. per lb., ex wharf, to come forward.

SODIUM SULPHATE (SALTCAKE).—Prices 55s. per ton, ex works, 57s. 6d. per ton delivered, for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Price for home consumption: solid 61/62%, £9 15s.; broken 60/62%, £10 15s. per ton. Crystals 30/32%, £7 17s. 6d. per ton, all delivered buyers' works on contract minimum 4-ton lots. Special prices for some consumers. Spot material, 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; Roll, £10 10s. per ton; rock, £9 5s. per ton; ground American, £9 5s. per ton, ex store.

ZINC CHLORIDE 98%.—British material offered at round about £20 per ton f.o.b. U.K. ports.

ZINC SULPHATE.—Quoted £10 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

The Castleford Explosion

Damage Inspected by Minister of Health

MR. ARTHUR GREENWOOD, the Minister of Health, accompanied by several Yorkshire M.P.'s, on Saturday visited Castleford to inspect the area damaged by the explosion at Hickson and Partners' chemical works. He was conducted round the works by Mr. Bernard Hickson, the managing director, and then went on to see the damaged property. 316 houses have been seriously damaged—81 closing orders have been made and 42 houses are considered to be dangerous—while 103 others were slightly damaged. The Minister was asked to expedite any application that might be made for new houses, and replied that the matter should have every attention and that in the meantime he would send a housing inspector to consult with the local authority.

The attention of the Minister was also drawn to the situation of the works. He was informed that since Hickson and Partners' works were erected in 1915 there had been three explosions and one fire. At the present time, complaints were being made regarding the undesirability of works of that nature being allowed to remain in their present position, and a letter from the Castleford and Whitwood Gas Company, whose works were situate in the district, had been received protesting against the erection of such works in the midst of inhabited houses and other works.

Mr. Greenwood said he would inquire as to the powers of his department in such matters.

"£3 per Week!"

"PERTINAX" writes:—"Your issue of July 12 contains an advertisement calling for a works chemist, and offering a commencing salary of £3 per week. Educationists and others will no doubt derive much joy from studying this magnificent return for the fatiguing labour of studying modern chemistry."

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, July 17, 1930.

The movement of chemicals on this market seems to have settled down into a condition of seasonal slackness, and this has accentuated the comparative quietness previously in evidence. So far as actual new business is concerned, the bulk of the business reported during the past week has related to small parcels which, in the majority of instances, are required for prompt delivery or for delivery over the next few weeks, little interest being displayed in respect of commitments any distance ahead.

Heavy Chemicals

Bichromate of soda meets with a quietly steady demand and there has been no further change in respect of prices, offers being on the basis of 3⅜d. per lb., less 1 to 3½ per cent. Prussiate of soda keeps firm at from 4¾d. to 5¼d. per lb., according to quantity, and sales of this material are on moderate lines. There is only a quiet demand about in the case of sulphide of sodium, values of which are at about £10 per ton for the 60-65 per cent. concentrated solid quality and £8 for the commercial material. The price position of chlorate of soda is not too strong, with quotations in the neighbourhood of £24 15s. per ton; inquiry in this section during the week has been rather slow. Dibasic phosphate of soda is attracting moderate attention, with offers unchanged on the week at about £11 per ton. There is a fair demand about both for alkali and bicarbonate of soda, and quotations are firm at round £6 and £10 10s. per ton, respectively. Caustic soda meets with a quietly steady inquiry, both against contracts and in the open market, and values are well held, contract offers ranging from £12 15s. to £14 per ton, according to grade. Hyposulphite of soda is reasonably steady at up to £15 10s. per ton for the photographic material and £9 for the commercial quality, moderate buying interest being shown. Saltcake is on offer at from £2 15s. to £3 per ton, according to quantity.

There is a moderate trade passing in the case of yellow prussiate of potash, quotations for which are well held at from 6¾d. to 7¼d. per lb., according to quantity. The demand for permanganate of potash this week has been on the quiet side, with the B.P. grade quoted at 5⅞d. to 5½d. per lb. and the commercial at round 5¼d. Neither caustic potash nor carbonate of potash is particularly firm, and sales have been limited in extent; caustic is quoted at from £29 to £30 per ton, and carbonate at round £25. Chlorate of potash meets with a moderate inquiry with prices unchanged since last report at round £26 per ton. Bichromate of potash is in quietly steady demand and is quoted at 4½d. per lb.

Continued weakness is in evidence in respect of sulphate of copper, quotations for which to-day are no better than about £23 to £23 10s. per ton, f.o.b., with sales smaller than usual. Arsenic is in moderate request, with white powdered, Cornish makes, on offer at about £15 15s. per ton at the mines. The acetates of lime are obtainable at about £14 10s. per ton for the grey quality and £7 10s. for the brown, but buying interest in this material is rather subdued. With regard to the lead products the demand is quiet and values are easy and uncertain at about £29 per ton for the nitrate and £36 and £35 per ton for the white and brown acetates.

Acids and Tar Products

Tartaric acid has shown little or no improvement, and current quotations for this material are no better than about 1s. 1d. per lb. Citric acid, however, is somewhat steadier at up to 1s. 6½d. per lb., and rather more interest has been shown. Acetic acid is moving in moderate quantities and prices are firm at about £36 per ton for the 80 per cent. commercial quality and £66 for the glacial. A quiet business is being put through in the case of oxalic acid, and values are steady at round 32s. per cwt., ex store.

In the by-product section, creosote oil is in very moderate demand, but offers of this are about maintained on balance at from 3d. to about 4d. per gallon, naked, according to quality. Pitch is quiet and nominal at 47s. 6d. per ton, f.o.b. Solvent naphtha is fairly steady at round 1s. 2½d. per gallon, and a fair amount of buying interest is being shown. With regard to carbolic acid, crude is slow and easy at 2s. 2½d. to 2s. 3d. per gallon, naked, for 60's, with crystals fractionally steadier at 7¼d. per lb., f.o.b.

Company News

W. and T. Avery.—It is proposed to increase the authorised capital of the company by the creation of 250,000 new shares of £1.

Electrolytic Zinc Co. of Australasia.—The directors have declared a dividend at the rate of 8 per cent. per annum for the six months ended June 30 last, payable on September 4.

Broken Hill Proprietary Block 14.—The report for the half year ended March 31, 1930, states that the directors regret that the work for the period has been unprofitable, resulting in a net loss amounting to £7,478.

Alianza Co.—The profit and loss account for 1929 shows a gross profit of £30,381, compared with £103,868 in the previous year. London and Valparaiso charges absorb £11,073, and Chilean taxes £11,419. Interest and discounts take £40,587, against £13,575, and with various other expenses incurred during the year, the trading profit was converted into a net loss of £71,944, this comparing with a net profit of £37,212 in 1928. With £216,946 brought in, the credit balance carried forward is £145,002. The profit in 1928 enabled a dividend of 7 per cent. to be paid.

"Sanitas" Co.—For the year ended March 31, 1930, the report states that the balance at the credit of profit and loss account, including £3,000 brought forward, was £64,521. From this £7,326 has been paid as dividend on the preference shares for the half-year ended September 30, 1929, and £13,750 as interim dividend on the ordinary shares, leaving, after payment of final dividend of 4½ per cent. on the preference shares, a balance of £36,119, out of which it is proposed to pay a final dividend on the ordinary shares of £32,500, leaving £3,619 to be carried forward.

Aluminium Corporation.—The report to December 31 shows a loss of £62,854. *Pro forma* balance sheet as of that date, giving effect to scheme of reorganisation, shows land, buildings, plant and machinery valued at £200,000, house properties £100,000 and agreements and goodwill £50,000, compared with actual balance sheet total of £1,313,332. Shares in associated and subsidiary companies £62,000 (against £82,429), issued capital £75,000 (against £468,208), Debentures, £350,000 (against £1,054,420), creditors and credit balances, apart from secured and bills payable, £72,754 (against £429,841), loss for half-year to December 31 £7,276 (against debit balance at profit and loss £254,667). The directors state that as a result of the scheme the financial position is greatly improved. With funds now available, improvements in works at Dolgarrog are being carried out which should result in increased capacity and efficiency.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal" have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

Canada.—A company in Quebec is desirous of receiving from British manufacturers particulars and catalogues of machinery for the manufacture of clay products, such as pipes, tiles, bricks, etc. Ref. No. A.X. 9,900.

Holland.—An importer for own account and buying agent in Woerden desires to secure the representation of British manufacturers of paints, varnishes and printing inks. (Ref. No. 65.)

South Africa.—The South African Railways and Harbours Administration are calling for tenders (Tender No. 1,724), to be presented in Johannesburg not later than August 25, for the supply and delivery of approximately 231,500 lb. of carbide of calcium. (Ref. B.X. 6,648.)

Tariff Change

Poland.—A Government Order, dated June 13, prohibits until further notice the importation of glue classified under No. 43 (4) and (5) of the Polish Customs Tariff. Imports may be allowed of glue originating in countries with which Poland has concluded a commercial treaty and, in exceptional cases, from other countries.

Workman Killed by Carbon Monoxide

Compensation Claim Against Wood Wool Co.

IN Shoreditch County Court, on Thursday, July 10, Judge Cluer had before him a case of carbon monoxide poisoning which he said he felt sure would go to the House of Lords. The applicant was Mrs. Carter, widow of J. C. Carter, an engineers' fitter, who was employed by the respondents, the City of London Wood Wool Co., Ltd., of Plover Works, Hackney Wick. Carter was on January 6 starting up a gas engine, when he was taken ill with carbon monoxide poisoning, and died two hours afterwards at his house. The defence was that, if the applicant was found to have died from an accident, it was not an accident that arose out of or in the course of his employment.

Albert Norwood, an engine driver, who worked with Carter, said that a gas engine was started, but stopped after a few minutes as the gas went off. Carter tested the gas to see if it would burn, and as it would not, he knew it was no good. Thereupon he did the maddest thing possible; he pulled out the gas valve with the idea of letting the bad gases escape, and got the full blast in his face. He collapsed and died two hours afterwards. There was a blow-off cock for the bad gases, but taking out the valve would be quicker and would facilitate the starting. They were both taken ill.

Never in Twenty-one Years

In cross-examination, witness said the valve had never been taken out before under such circumstances in the 21 years that he had been there. As the engine had been running for some minutes, Carter must have known that there would be a quantity of poisonous gas running into the engine from the generator, and that the fan would blow dust of carbon monoxide into his face. If he had waited, the posion gases would have gone out through the exhaust, but the valve was bigger, and therefore quicker.

Mr. Russell, for the respondents, submitted that they could not be held liable, as under the Act the action of Carter came under the category of an added peril.

Judge Cluer: It seems he was anxious about his work, and that the gas would escape faster with the valve off, and I can only say that if I am in a hurry I run. In giving judgment, he said he could not find that this was an added peril. The man was anxious about his work, and committed the blunder of forgetting the effect of the gases. There had been some slight monies paid, so he would reduce the applicant's claim to £260, for which sum he would enter an award in her favour, with costs.

British Glues and Chemicals, Ltd.

MR. T. WALTON (chairman) presided at the tenth ordinary general meeting of British Glues and Chemicals, Ltd., held in London on Thursday July 10. Referring to the accounts he stated that in view of the anxious manufacturing and trading conditions during the past year, their results, showing a net profit of £80,936, compared with £101,239 the previous year, were not entirely unsatisfactory. Labour costs in this country remained on a higher basis than on the Continent, and Continental competitors had an advantage which could only be neutralised by improved methods of manufacture. Valuable use had been made of the successes achieved by the company's research department in the realm of new and improved methods. Benefit had also been derived from the geographical rearrangement of their factories, and the London factory was expected to be completely equipped and in full operation by the end of the present year.

"C.A." Query

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries :—

146. (*"Gilsonite" and Iron Chloride.*)—A subscriber wishes to be put in touch with suppliers of "Gilsonite" and Iron Chloride.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

SMETHURST (HERBERT) (KNUTSFORD), LTD., engineers and chemical manufacturers, Ollerton Works, Ollerton, Knutsford. (C.C., 19/7/30.) £10. June 6.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debt due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

ATLAS ARTIFICIAL SILK PROCESSES, LTD., London, E.C. (M., 19/7/30.) Reg. July 2, £20,000 debenture to Alliance Artificial Silk Ltd., School Road, Oulton Broad; general charge.

London Gazette, &c.

Company Winding Up Voluntarily

URANIA PETROLEUM CO., LTD. (C.W.U.V., 19/7/30.) By reason of its liabilities, July 10. L. M. Oakes, 20, Copthall Avenue, London, E.C.2, incorporated accountant, appointed as liquidator.

Bankruptcy Information

STOTT, Milton, and SYKES, Herbert, lately carrying on business in co-partnership under the style of Milton Stott and Co., at Oxford Works, Siddall, Halifax, manufacturing chemists. First meeting July 22, 11 a.m., Official Receiver's Office, 12, Duke Street, Bradford. Public examination, October 3, 10.15 a.m., County Court House, Prescott Street, Halifax.

SYKES, Herbert, lately carrying on business in co-partnership with Milton Stott, under the style of Milton Stott and Co., at Oxford Works, Siddal, Halifax, manufacturing chemist. (R.O., 19/7/30.) Receiving order, July 10, creditor's petition.

New Companies Registered

CAMBIO PRODUCTS, LTD., 4, St. Mary Axe, London.—Registered July 12. Nominal capital, £6,010, in 6,000 preferred ordinary shares of £1 each and 200 deferred shares of 1s. each. Chemists and druggists, analytical and consulting chemists, chemical, mechanical and electrical engineers, etc.

SALTER PAINT AND COLOUR CO., LTD.—Registered July 10. Nominal capital, £2,000 in £1 shares. Manufacturers of and dealers in all kinds of paints, pigments, oils, colours, varnishes, polishes, cements, drugs and dyes; chemists, druggists, drysalters, oil and colourmen, etc. Directors: E. W. Crick, 11, Kelsey Way, Beckenham, Kent, and S. C. Saunders.

THE CHILEAN NITRATE PRODUCERS' ASSOCIATION (OVERSEAS), LTD., was registered as a "private" company on July 10, with a nominal capital of £5,000 in £1 shares. The objects and other particulars are similar to those of Chilean Nitrate Producers' Association (London), Ltd.

THE CHILEAN NITRATE PRODUCERS' ASSOCIATION (LONDON), LTD.—Registered as a private company on July 10. Nominal capital, £10,000 in £1 shares. Manufacturers, importers, exporters and producers of and dealers in all kinds of ores, metals, minerals, chemicals and chemical products, fertilisers and fertilising products, vegetable and other products. A subscriber: L. E. Grant, 117, Fenchurch Street, London, E.C.3.